



**Meridian.**

## **Meridian submission**

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

**27 November**



This submission by Meridian Energy Limited (**Meridian**) responds to the Electricity Authority (**Authority**) supplementary consultation paper on its preliminary decision of an undesirable trading situation (**UTS**) released on 6 November 2020 (**the supplementary consultation paper**).

Attached to Meridian's submission is an accompanying expert report from Sapere Research Group *UTS preliminary decision supplemental consultation: An economic perspective on the Authority's new steps* (**Sapere Report**).

The submission is divided into the following parts:

- Part A: Executive Summary
- Part B: The Authority's process to date
- Part C: No unusual confluence of factors, the market continued to operate normally
- Part D: Reduced competition: not relevant and did not occur
- Part E: Market outcomes did not amount to a UTS
- Part F: The Authority's legal approach remains fundamentally flawed
- Part G: Extension of the UTS period
- Part H: Attachments

The consultation questions in the supplementary consultation paper are addressed in the body of this submission.

For any questions relating to this submission, please contact:

Jason Woolley, General Counsel, DDI: +64 4 381 1206

Sam Fleming, Manager Regulatory and Government Relations, DDI: +64 4 803 2581

## Part A: Executive Summary

In late 2019, the rainfall and inflows to Meridian's hydro lakes and in other parts of the South Island were among the highest ever seen. As a result, Meridian generated more electricity over December 2019 than we have ever previously done in any December in our history (including when Meridian owned and operated the two Tekapo power stations). The scale of the inflows was nevertheless such that, even though we were generating hard, we were forced to spill water on a massive scale. This was necessary and mostly unavoidable if the integrity of our hydro structures was to be maintained, damage to property and the immediate environment was to be avoided, and the safety of those living and working in the vicinity of our hydro schemes was to be preserved.

Meridian accepts that, with the benefit of perfect hindsight, a relatively small fraction of this spill - about 12GWh – might have been avoided if Meridian and other South Island generators had structured their generation offers differently and Meridian agrees, that from an climate action perspective, spill should be avoided where possible. The avoidable amount was small - only about 0.3% of the total amount that Meridian alone had to manage across the relevant period. Importantly, there was no impact on most consumers, as the Authority recognised in its preliminary decision. And one year down the track, there is no evidence that the events of December 2019 have had any impact on retail prices.

Meridian has already taken steps to ensure that, in the event of a recurrence of a significant flood event like that we saw in December 2019, we will minimise or eliminate avoidable spill. If the Authority considers it appropriate we would welcome an initiative to reflect these or similar steps in the Code either by way of a clear statement as to how hydro generator offers are required to be structured at times of spill or perhaps via a Code obligation on hydro generators to eliminate avoidable spill. Although the Authority has not seen a need for such a provision in the Code before now, it is always open to the Authority to reform the way the market operates via the Code and either approach would be reasonable and within the Authority's powers as industry regulator.

However, Meridian does not agree that the events of December 2019 amounted to a UTS. Analysis of those events against the context of how the market has operated to date in similar periods of high inflows demonstrates, in our view, that everything that happened in December 2019 was within the normal operation of the market and was not a UTS. In reaching a different view in its preliminary decision we believe the Authority has

misinterpreted the Code. Submissions on the preliminary decision pointed out a number of errors in the Authority's approach. Instead of engaging with those submissions, the Authority has, in its supplementary consultation paper, added new steps to the new UTS test it has adopted. Unfortunately, the new steps in the new test appear to compound the problems in the preliminary decision rather than addressing them. In our view the Authority is still not applying the appropriate legal approach to the question of whether a UTS arose.

In presenting the Authority's preliminary decision the Authority asserted that Meridian's actions on their own constituted a UTS. At that time the Authority also significantly overstated the amount of avoidable spill. The 41 GWh stated in the preliminary decision did not account for Benmore outages and was for the whole of December rather than the shorter UTS period suggested by the Authority (after correcting these errors, the total volume of spill that might have been avoided by South Island hydro generators is 12 GWh). Because of the way the preliminary decision was presented, Meridian was the focus of media attention and the claimants saw an easy opportunity to damage a competitor's reputation and brand. The Authority's supplementary consultation paper appears to resile to some extent from that position as the paper now states that it is "not looking to establish particular blameworthy conduct by participants ... 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." Four of those five factors are attributed to Genesis, Contact, Mercury and Meridian. This correction in the Authority's language is positive and we welcome this development, but the reputational damage has already been done. No doubt the shift in language and blame will be conveniently overlooked by the UTS claimants. It appears to Meridian that for some of the claimants, their extensive media engagement and mischaracterisations of the Authority's preliminary findings and process suggests that for them this allegation is not about whether a UTS occurred but about weakening consumer perception of a competing brand and improving their own position.

The new steps added by the Authority are its second attempt to reformulate the UTS decision-making framework. In previous UTS investigations, the Authority has carried out an event study by looking at a range of objective indicators of confidence in, and integrity of, the wholesale market. In the preliminary decision paper, the Authority chose to abandon its historic approach and instead equated a loss of confidence with any outcome that differed from the Authority's subjective expectations. Now the supplementary consultation paper has again reformulated the decision-making framework, introducing five steps. It is unclear why the Authority has within a few months introduced yet another framework, which seems unlikely to affect its view on whether a UTS has arisen, because it does not change the final

two steps of its proposed approach. We believe this change adds complexity and confusion to an incorrect application of the UTS provisions of the Code which differs from that applied by the Authority previously.

A summary of Meridian's concerns with the supplementary consultation paper is set out below:

### **No unusual confluence of factors, the market continued to operate normally (Part C)**

The "confluence of factors" said to make the situation unusual are all in fact part of the normal operation of the market. Genesis' South Island scale and offer strategy were no different to normal. Contact was participating in price discovery as one might expect, and the Authority's suggestion that Contact was not fails to recognise the way prices are discovered in the wholesale market. Mercury offering to conserve water ahead of a planned outage and higher future water values was no different to any other hydro generator managing storage with a view to the future – this is an entirely normal aspect of the New Zealand electricity market. As set out in the evidence provided by Meridian in its earlier submission, generators offering so as to avoid the binding of transmission constraints has long been, and continues to be, expected behaviour – and the Authority has recognised this in the past. Finally, while the inflow events at the end of 2019 were record breaking, high inflows and storage are commonplace in New Zealand's hydro dominated electricity market, given the usual volatility of weather patterns and limited hydro storage. At any rate, the market continued to perform normally during the alleged UTS period (prices fell and record breaking generation occurred) and there was no dysfunction despite the hydrological events.

### **Reduced competition; not relevant and did not occur (Part D)**

"Reduced competition" is not relevant to a UTS and even if we assume for a moment that the "confluence of factors" identified by the Authority was unusual, no evidence has been presented of a lessening of competition as a result. In fact, as noted by Sapere, "[a]n increase in inflows in a hydro generation system increases the fuel available to hydro generators, shifts the supply curve outwards, and *increases competitive pressure* in the wholesale market."<sup>1</sup>

---

<sup>1</sup> Sapere Report, attached, at [37].

## **Market outcomes did not amount to a UTS (Part E)**

The Authority has, for the first time, applied a quantitative approach to determining whether market outcomes were “normal”. In doing so, it has looked at the correlations between different market parameters using an “objective comparator” baseline and the actual correlation measured during the UTS investigation period.

However, the “objective comparator” has not been established in a way that enables the proper identification of what is “usual”, “normal”, or “to be reasonably expected”. Instead, each of the factors in the objective comparator show a wide range of different outcomes that have previously been considered part of the normal operation of the market.

When comparing that wide range of “normal” outcomes with the outcomes over the alleged UTS period (3 to 27 December) or to the UTS investigation period (10 November to 6 January) it is clear that the results are very sensitive to the short periods of time for comparison, with very different results for each of the two UTS periods. In fact, comparing any given month to the objective comparator shows a very wide range of results and relative to other months the UTS period (however it is defined) looks entirely unremarkable.

We are unsure why the Authority has compared long run correlations over a wide range of market conditions to one period of specific market conditions. This is especially unusual when the Authority itself has said that “the normal relationships do appear to break down during periods of high storage” and none of the many historic periods of high inflows and storage have been claimed to be a UTS.

## **The Authority's legal approach remains fundamentally flawed (Part F)**

The Authority is not undertaking its quasi-judicial role of applying the Code as drafted. The UTS regime that the Authority is applying bears little resemblance to the Code. Rather than a rule of last resort to respond to unforeseen or exceptional circumstances coupled with aberrant behaviour, the Authority is applying the UTS regime as a market optimisation rule. It is not, and the approach risks fundamentally undermining the ability of the market to engage in proper price discovery.

## Extension of the UTS period (Part G)

If the Authority were to find a UTS over the extended period, we are concerned it would be doing so without proper regard to the requirements of natural justice.

The only reason given by the Authority for an end date of 27 December 2019 is that Contact stopped spilling at Clutha on that date and that Contact's operation of spill gates during spill was one of the five factors that might have reduced competition. Despite the fact that Contact's behaviour was not unusual, and several of the other factors persisted, the Authority says generation might have been more efficiently dispatched over this period, effectively claiming it knows better than participants the correct value of different sources of generation. However, it is not clear that North Island generation would have been displaced even at very low prices. North Island hydro and thermal operators had contract positions to cover during the alleged UTS period and, while the Authority might think it would be more efficient to displace those generators, the result may well have been sub-optimal from the perspective of those generators. The Authority seems to be saying that because market outcomes differed from its own subjective view of optimally efficient outcomes there must have been a UTS.

If anything, the Authority's data shows that wholesale prices were *unusually low* between 19 and 27 December 2019. If wholesale prices at the levels seen from 19 December 2019 can threaten confidence and give rise to a UTS then there would seem to be a clear risk that *any* trading period could be claimed to be a UTS. With perfect hindsight and information the Authority will invariably be able to find market outcomes that it subjectively considers more efficient (irrespective of the extent of any increase in efficiency, whether the operators of generation plant agree, or whether there is any material impact on final prices). The scope of what might be claimed to be a UTS would therefore be vast and apparently unchecked by the UTS provisions in the Code.

# Table of contents

<b>Part A: Executive Summary .....</b>	<b>3</b>
<b>Part B: The Authority's process to date.....</b>	<b>9</b>
The Authority's preliminary decision.....	9
Submissions and Cross-submissions on the preliminary decision .....	9
Supplementary consultation paper.....	11
<b>Part C: No unusual confluence of factors, the market continued to operate normally .....</b>	<b>15</b>
The confluence of factors said to make the situation unusual are in fact part of the normal operation of the market.....	15
Large inflow events.....	15
Contact did not participate in price discovery.....	16
Mercury was trying to conserve water.....	16
Genesis stated that it is a price taker in the South Island .....	17
Meridian's internal reports mention maintaining HVDC limits .....	18
Sapere agrees the market was operating normally.....	18
<b>Part D: Reduced competition: not relevant and did not occur .....</b>	<b>20</b>
There is no evidence that the supposedly unusual circumstances resulted in a reduction in competition .....	20
<b>Part E: Market outcomes did not amount to a UTS .....</b>	<b>23</b>
The correlations used by the Authority amount to false scientism .....	23
Issues with the establishment of the "objective comparator" .....	23
Issues with comparing the "objective comparator" to the UTS investigation period .....	25
The inadequacies of the Authority's statistical analysis are highlighted by internal inconsistencies in the supplementary consultation paper.....	30
Sapere identifies similar issues .....	34
Conclusion on the use of statistical analysis .....	34
<b>Part F: The Authority's legal approach remains fundamentally flawed.....</b>	<b>35</b>
Introduction.....	35
A UTS requires disfunction, not "unusual" circumstances and "unusual" outcomes.....	35
The Authority is incorrectly attempting to turn the UTS regime into an optimisation regime .....	36
The Authority is still imposing a shadow rule change by way of UTS analysis.....	37
The Authority's approach is incapable of application by market participants in real time .....	38
<b>Part G: Extension of the UTS period .....</b>	<b>40</b>
Procedural flaws in consideration of a longer UTS period .....	40
An extended timeframe would ignore the UTS test in the Code and the Authority's own confluence of factors .....	40
It is far from clear that North Island generation could have been displaced .....	41
If anything, wholesale prices appear unusually low during the extended period .....	42
<b>Part H: Attachments .....</b>	<b>46</b>

## Part B: The Authority's process to date

### The Authority's preliminary decision

On 12 December 2019, the Authority received a claim that an undesirable trading situation had arisen on 10 November 2019 and was ongoing as at that date. On 30 June 2020, the Authority released a preliminary decision on that claim.

The Authority considered whether the spot market delivered outcomes that reflected supply and demand conditions and analysed participation in the futures market. The Authority's preliminary decision stated that spot market outcomes did not meet the Authority's expectations of an electricity wholesale market with abundant cheap fuel in light of its ex-post modelling with perfect hindsight of "ideal" offer prices for the period, and that the departure of spot market outcomes from the Authority's expectations may have reduced confidence in the spot and forward markets. No change was observed in the participation in the futures market but the link between the two markets was considered sufficient to see a risk that spot market inefficiency would flow through to the futures market. The Authority also considered offer behaviour that sought to stop the HVDC link from binding was improper. On those bases, the Authority reached the preliminary conclusion that a UTS arose between 3 and 18 December 2019.

### Submissions and Cross-submissions on the preliminary decision

Meridian has previously submitted:

- that spot market outcomes were not unusual;<sup>2</sup>
- that managing transmission constraints with offers is normal market behavior and in any event was not a major factor;<sup>3</sup>
- that the Authority has misinterpreted and misapplied the UTS test;<sup>4</sup>
- that the Authority's approach amounts to market reform and the UTS regime is not the appropriate tool for market reform;<sup>5</sup> and
- that the Authority has, despite claiming to apply a workably competitive market standard, applied a "perfect competition standard", which is inappropriate.<sup>6</sup>

---

<sup>2</sup> Meridian submission, available [here](#), at Part C; and Meridian cross-submission, available [here](#), at 6–8.

<sup>3</sup> Meridian submission, available [here](#), at Part D; and Meridian cross-submission, available [here](#), at 9–11.

<sup>4</sup> Meridian submission, available [here](#), at Part E; and Meridian cross-submission, available [here](#), at Parts B and C.

<sup>5</sup> Meridian submission, available [here](#), at Part F; and Meridian cross-submission, available [here](#), at Part E.

<sup>6</sup> Meridian cross-submission, available [here](#), at Part C.

The events investigated by the Authority did not cause unusual outcomes in the spot market. Spilling and making non-zero price offers is consistent with the normal operation of the wholesale market. This is the more so when the errors in the Authority's spill modelling are corrected.

Managing basis risk through generation offers is part of the normal operation of the wholesale market. The Authority's previous investigations of such behaviour have indicated it is not a UTS. In any event, the HVDC link constraint was not a major factor in the investigation period. Indeed, it was only at risk of binding in 2.7% of trading periods between 3 and 18 December 2019.

The Authority in our view misapplied the UTS regime in the preliminary decision.<sup>7</sup> The regime is a "last resort" to correct the otherwise unfixable lest irreparable harm be caused to the wholesale market.<sup>8</sup> A UTS requires unforeseen or exceptional circumstances coupled with aberrant behaviour.<sup>9</sup> As Sapere described it: "UTS provisions exist in market rulebooks to cover *unforeseen and exceptional situations*. Predictable and recurring events do not give rise to a UTS ...".<sup>10</sup> Indeed, the Code describes exceptional or unforeseen circumstances as appropriately also needing to be "contrary to the public interest" before they are likely to amount to a UTS.<sup>11</sup>

A UTS is a readily identified issue usually of "short duration"<sup>12</sup> that must be identified within ten business days and then remedied as soon as possible to restore normal market operations.<sup>13</sup> The Authority has previously recognised that the UTS regime, properly understood, includes an effective safe harbour from the UTS regime applying to normal market operations and behaviour because acting in a manner consistent with prior behaviour cannot possibly threaten confidence or integrity.<sup>14</sup>

By adopting an approach that tests actual market outcomes against the Authority's "expected" or "ideal" market outcomes, the Authority has fundamentally misconstrued the

---

<sup>7</sup> Meridian submission, available [here](#), at [10]–[11] and Part E; and Meridian cross-submission, available [here](#), at Parts B and C; Contact submission, available [here](#) at [22]–[32]; Nova Energy cross-submission, available [here](#), paragraph [2].

<sup>8</sup> See Code, r 1.1 definition of undesirable trading situation at (b).

<sup>9</sup> Meridian submission, available [here](#), at [10].

<sup>10</sup> Sapere Report, available [here](#), at [2].

<sup>11</sup> Electricity Industry Participation Code 2010 at r 5.1(2)(f).

<sup>12</sup> *Bay of Plenty Energy Limited v the Electricity Authority* HC Wellington CIV-2011-485-1371, 27 February 2012 at [218]

<sup>13</sup> Code, clause 5.1A, 5.2 and 5.5.

<sup>14</sup> Meridian submission, available [here](#), at [44]–[46].

test for a UTS and turned it from a rule of last resort into a “market optimisation” power. It has also jettisoned the effective safe harbour and inappropriately suggested there was a UTS when the market in December 2019 to January 2020 reflected normal market operations in response to abnormal hydrological events,<sup>15</sup> and the actions of Meridian and others were consistent with their prior behaviour.<sup>16</sup>

The lack of a proper qualifying situation on which to establish a UTS finding, has resulted in the Authority effecting a shadow Code change through the UTS process. That is improper at law.<sup>17</sup> This is a view shared by Trustpower, Contact and Mercury.<sup>18</sup> If the Authority wants market participants to behave differently during spilling events it should commence a Code change process, including assessing the proposed changes against the statutory objectives, and only apply such changes prospectively. That process allows for proper consideration of the impacts (including unintended consequences) of such a change and to ensure any proposed change is in the best interests of the market and consumers. The UTS process, designed as it is for urgent restoration of market operation, is not the right tool to achieve the Authority's apparently desired outcome.

Even if it were appropriate to imply a competition test into the UTS standard, the Authority's approach to competition does not apply the orthodox “workable competition” standard but only purports to do so; in fact, the Authority applies a “perfect competition” standard. That standard means that the Authority assessed the observed outcomes against an unobtainable standard.<sup>19</sup>

### **Supplementary consultation paper**

Following a submission and cross-submission process that saw carefully articulated feedback from market participants about the appropriate approach to the UTS test and its application to the events in question, the Authority released its supplementary consultation paper. Rather than engaging with those submissions and cross-submissions, the supplementary consultation paper has introduced new steps in the Authority's proposed new UTS test that were not disclosed or discussed in the preliminary paper, nor consistent with

---

<sup>15</sup> Meridian submission, available [here](#), at Part C; Meridian cross-submission, available [here](#), at Part B; and Sapere Report, available [here](#), at [10]–[11].

<sup>16</sup> Brattle Report, available [here](#), at [4]–[7] regarding Meridian's actions. Contact cross-submission, available [here](#), at [16] noting the market as a whole had operated in a similar manner on a number of previous occasions.

<sup>17</sup> Meridian submission, available [here](#), at Part F; Brattle Report, available [here](#), at Parts III and IV; Sapere Report, available [here](#), at [5]–[7]; and Meridian cross-submission, available [here](#), at Part E.

<sup>18</sup> Meridian cross-submission, available [here](#), at 20–21, citing Trustpower submission, available [here](#), at 2; Contact submission, available [here](#), at [32]; and Mercury submission, available [here](#), at 3.

<sup>19</sup> Meridian cross-submission, available [here](#), at 12–13; and Sapere Report, available [here](#), at [7]–[13].

past practice. This round of consultation, therefore, occurs in something of a twilight zone, where market participants do not know what of the prior consultation the Authority has accepted and what it has rejected. That uncertainty, coupled with the short timeframe for submissions in response and the Authority's expressed desire to publish a decision in December 2020 rather suggests that the Authority has remained fixed on its approach in the preliminary decision and has not considered with an open mind the submissions and cross-submissions filed to date.

The supplementary consultation paper does six things:

1. introduces three new steps to the Authority's test for finding a UTS disclosed in the preliminary decision, resulting in a novel five-step test;
2. identifies a "confluence of factors" that are said to have reduced competition;
3. creates a "comparator" or "counterfactual" against which to compare the alleged UTS outcomes;
4. undertakes a qualitative analysis of the counterfactual against the UTS period;
5. undertakes a correlation analysis of relationships said to illustrate the qualitative analysis; and
6. suggests that there are grounds for a UTS starting on 3 December and continuing until 27 December (not 18 December as in the preliminary decision).

The Authority's approach in the supplementary consultation paper reinvents the approach in the preliminary decision by identifying and grafting on to its analysis three new preliminary steps. A five-step test for a UTS is therefore set out:<sup>20</sup>

1. Was there a confluence of circumstances and/or behaviours that made the situation unusual?
2. Did this unusual confluence of factors result in reduced competition?
3. If competition was reduced, did it lead to unusual market outcomes?
4. What was the magnitude and duration of any identified difference from normal market outcomes?
5. Was any difference from normal market outcomes sufficient to threaten, or that it may have threatened, confidence or integrity?

Overall however, the approach remains one of comparing the Authority's hypothetical expectations based on its ex-post modelling of ideal market outcomes, to the real operation of the market.<sup>21</sup>

---

<sup>20</sup> Supplementary consultation paper at [3.3]–[3.6] and Figure 1.

<sup>21</sup> Supplementary consultation paper at [3.2].

The Authority identifies a "confluence of factors", both circumstances and behaviours, as an attempt to describe whether a situation is "unusual".<sup>22</sup> The Authority picks out a handful of circumstances that it has chosen after nearly a year of investigation, and lists them at paragraph 3.8.

Based upon those factors, the Authority then crafts an expected or ideal market set of circumstances as a "comparator" or "counterfactual", to assess whether the observed outcomes were "unusual".<sup>23</sup>

The Authority provides qualitative analysis, in Table 1, of the comparator and the alleged UTS period. That qualitative analysis is supported with some data correlation work purporting to measure quantitative effects.<sup>24</sup> The market dynamics isolated in Table 1 are linked to illustrative relationships the correlation coefficients of which are compared between the "objective comparator" (the period 1 June 2011 to 9 November 2019) and to the alleged UTS investigation period (to 6 January 2020) in Table 2.

Finally, the Authority proposes for the first time that a UTS may have occurred from 3 December 2019 until 27 December 2019 (the preliminary decision only considered a UTS may have arisen in relation to 3 December to 18 December). This extended UTS period is based on the premise that "the overall dispatch would have been more efficient" in the wholesale market if different actions were taken.<sup>25</sup>

The points made by Meridian in submissions and cross-submissions still stand. The supplementary consultation paper has not addressed Meridian's previous concerns.

### **This submission**

The rest of this submission:

- first considers the so called "unusual circumstances" which are, in fact, all "usual" (Part C);
- second, it considers the alleged reduction in competition and finds no evidence for it (Part D);

---

<sup>22</sup> Supplementary consultation paper at [3.7]–[3.10].

<sup>23</sup> Supplementary consultation paper at [3.11]–[3.14] and table 1.

<sup>24</sup> Supplementary consultation paper at Part 4.

<sup>25</sup> Supplementary consultation paper at Part 5.

- third, it reviews the Authority's analysis of whether the market outcomes amounted to a UTS and observes they did not (Part E);
- fourth, it explains the ways in which the Authority's approach is unlawful (Part F);  
and
- finally, it addresses the proposed extension of the UTS period beyond that identified in the preliminary decision (Part G).

## **Part C: No unusual confluence of factors, the market continued to operate normally**

**The confluence of factors said to make the situation unusual are in fact part of the normal operation of the market**

The supplementary consultation paper at paragraph 3.8 identifies a list of factors which "together or alone" were unusual. However, these factors are in fact part of the normal operation of the market. The five factors listed are:

1. A series of very large inflow events.
2. Contact using its automated spill gates for the first time and was supposedly "trying to avoid being the marginal generator" such that "Contact did not participate in price discovery."
3. Mercury was trying to conserve water in anticipation of the scheduled HVDC outage, a planned Pohokura outage, and higher prices in the first quarter of 2020.
4. Genesis stated that "it is a price taker in the South Island due to its scale".
5. "Meridian's internal reporting indicated it was withholding generation to avoid the HVDC binding."

Each of these factors is assessed below.

### **Large inflow events**

The inflow events in November and December 2019 were of an exceptional scale and in some cases broke records. Meridian provided detail on the extent of inflows to its catchments during the first round of submissions. Collectively the inflow events resulted in Meridian simultaneously spilling water from every hydro structure under its control. This is the first time in Meridian's history that this has occurred.

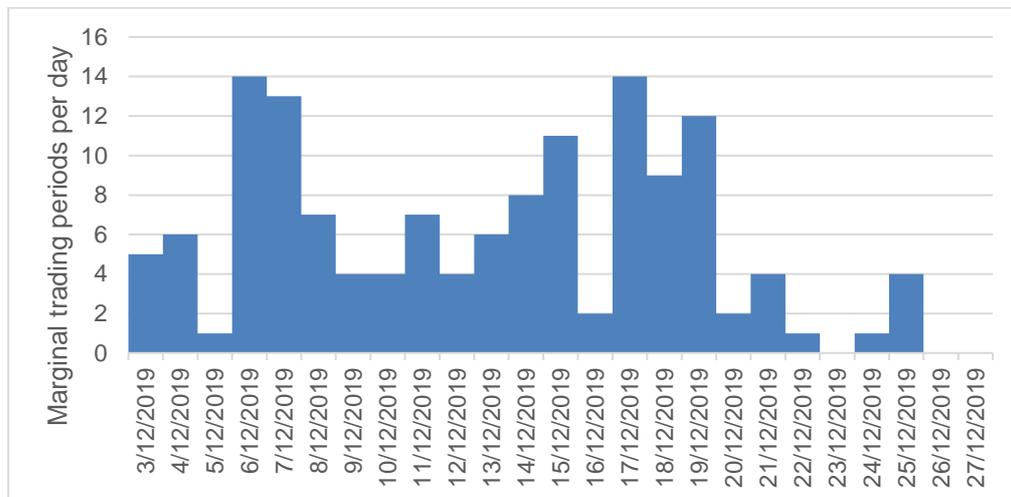
However, while the scale of inflow events was exceptional, large inflow events occur frequently as do high lake levels and spill. These are accepted and well understood features of the hydro-dominated New Zealand electricity market. There are many occasions throughout the history of the market when large inflow events caused a rapid increase in storage levels and resulted in spill. In fact, most instances of spill are preceded by large inflow events. Large inflow events will continue to be a feature of the New Zealand market and occur on a regular basis.

## Contact did not participate in price discovery

To say Contact did not participate in price discovery is not correct and seems to be an assertion based on short-hand commentary by Contact rather than any actual analysis of evidence. It is widely understood that firms use offer strategies based on price, quantity, and a combination of both. Tranches of generation offers do not need to be marginal to have an influence on prices. It is very surprising the Authority takes an opposing view to this and posits, without any evidence, that low priced generation offers do not assist in price discovery. The fact that prices tend to fall with reductions in demand (such as overnight or during summer holidays) is proof that volumes offered at low prices matter in terms of price discovery.

It is also incorrect to suggest that Clutha was not marginal. Market data in Figure 1 below shows that Clutha offers were in fact marginal in 12% of trading periods between 3 and 27 December 2019 (about what might be expected given the scale of Clutha generation).

**Figure 1: Clutha marginal trading periods per day 3 – 27 December**



## Mercury was trying to conserve water

Mercury's offers signalled a desire to cover contracted load and otherwise conserve water. At any point in time, hydro generators take differing views on their portfolio and management of storage into the future – this diversity of views is a strength and an entirely normal aspect of the New Zealand electricity market.

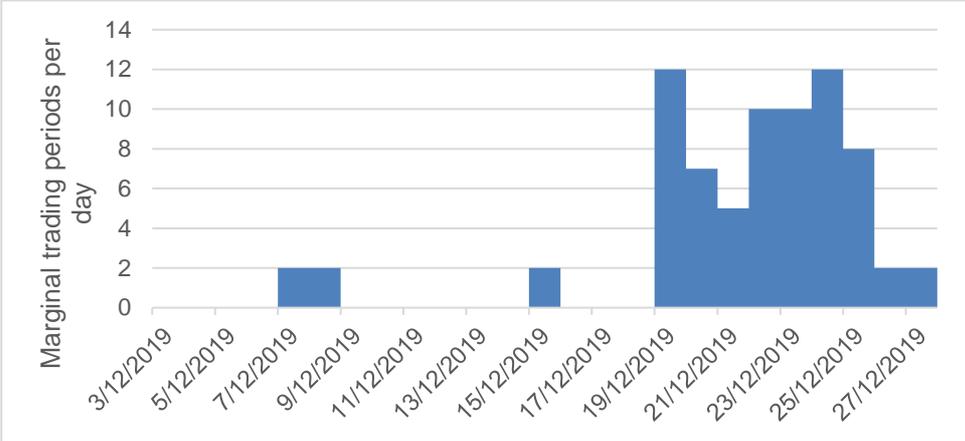
The Authority considers Mercury's actions in response to planned outages (HVDC and Pohokura) were "unusual" and warranted inclusion in the "confluence of factors".<sup>26</sup> Planned outages are a part of normal market operations, so too are market participants planning for them. Mercury's planning for outages by conserving water is not aberrant behaviour in response to unforeseen or exceptional events it is usual behaviour in response to an event that is a standard part of market operations.

**Genesis stated that it is a price taker in the South Island**

The Authority suggests that Genesis' position as a price taker in the South Island due to its scale is unusual. Genesis' South Island scale, however, has been a stable feature of the market for some time. It has not changed recently such that its scale during the UTS investigation period was unusual.

Furthermore, the claim that Genesis is a price taker in the South Island is not substantiated. As shown below in Figure 2, Genesis offers for Tekapo B alone were marginal on several occasions between 3 and 27 December 2019.<sup>27</sup>

**Figure 2: Tekapo B marginal trading periods per day 3 – 27 December**



Even assuming Genesis was a price taker, this factor would not be unusual or indicate a lessening of competition. Any claim that non-marginal offers do not affect price fails to recognise how prices are discovered in the market. The "marginal offer" is only the marginal offer because there are sufficient non-marginal offers at a price below it.

<sup>26</sup> Supplementary consultation paper at [3.8(c)].  
<sup>27</sup> Tekapo A marginal offers over this period are more complicated and have not been included in Figure 2 because Tekapo A was islanded due to outages on ABY\_TKA\_1 from 2/12/2019 to 5/12/19 and on ABY\_TIM\_1 from 9/12/19 to 13/12/2019 [Source: POCP].

Finally, Genesis's behaviour is not unusual. Meridian understands that, as Genesis operates a portfolio of hydro and thermal generation, it generally chooses to offer Tekapo hydro generation at low prices to (Meridian surmises) cover its contracted volumes, given the availability of Genesis' North Island thermal generation. Genesis operating in this way is expected by Meridian; it is not unusual.

### **Meridian's internal reports mention maintaining HVDC limits**

The Authority also now suggests that offering to avoid the HVDC binding is unusual. That contradicts the Authority's own prior stance on this issue. The Authority has previously recognised that managing basis risk through generation offers is part of the normal operation of the wholesale market.<sup>28</sup> Further, far from being "unusual", Sapere noted that the practice of avoiding the HVDC binding has been happening for 25 years.<sup>29</sup> Meridian's submission on the preliminary decision provided several recent examples of offers that had taken transmission constraints into account.<sup>30</sup>

At any rate, as previously advised by Meridian, avoiding the HVDC constraint was not a material factor in the context of the alleged UTS.<sup>31</sup> The HVDC constraint was not a risk for most of the 3 to 18 December period identified in the preliminary decision, in either the real-world scenario or in the Authority's perfect hindsight counterfactual. In fact, most of the time, HVDC transfer was not even within 85% of maximum and would therefore not have been visible to traders as a potential constraint in forward schedules.<sup>32</sup>

### **Sapere agrees the market was operating normally**

As Sapere notes in the attached report, in a market as dynamic as the wholesale electricity market, circumstances at any point in time are invariably unusual. However, the test in the Code is not whether circumstances are unusual, it is about situations that are unforeseen by the Code and outside the normal operation of the market:<sup>33</sup>

---

<sup>28</sup> Meridian submission, available [here](#), at [32]–[38].

<sup>29</sup> Sapere Report, available [here](#), at [14]–[17].

<sup>30</sup> Meridian submission, available [here](#), at [32]–[38].

<sup>31</sup> Meridian submissions, available [here](#), at Part D.

<sup>32</sup> See Meridian submissions, available [here](#), at 30 where the percentage of trading periods above 85% of the HVDC limit or within 50 MW of the limit are set out under the factual and counterfactual.

<sup>33</sup> Sapere Report, attached, at [35]–[36].

“The events of December 2019 were accommodated within the existing Code; there was no gap in the Code that needed to be filled to allow the market to operate normally. The Authority clearly would have preferred generators, with plant in the South Island, to have offered greater quantities at even lower prices than they did. However, substituting the commercial judgement of generators with the Authority’s view of a better outcome does not restore the normal operation of the market. Rather, it replaces it.”

## Part D: Reduced competition: not relevant and did not occur

The Authority introduces a new "reduced competition" limb for no apparent reason. A UTS could be found without a reduction of competition. By adding it as a step in the analysis the Authority has (inappropriately in our view) conflated its view of sub-optimal market operations with a UTS by saying any reduction from workable, or really perfect, competition could be sufficient to establish a UTS.

### **There is no evidence that the supposedly unusual circumstances resulted in a reduction in competition**

The Authority's approach requires that the confluence of factors lead to reduced competition. We leave aside for the moment that none of these terms appear in the UTS Code provisions.

Competition is a process not an outcome. In December 2019 the process of competition was not reduced. There remained the same number of market participants and there remained competitive uncertainty as to how participants would bid into the market throughout the alleged UTS period. That the Authority disagrees with the market outcome does not mean that competition, properly understood, was reduced.

Previously, the Authority has recognised, in the context of workable or effective competition, that:<sup>34</sup>

"In reality competition is not necessarily orderly or constant over time. There can be periods when competition declines as competitors exit markets as they discover they are unable to operate profitably, and this can happen in a disorderly manner. There can also be situations when competition appears weak because firms can charge prices above competitive levels until new suppliers enter the market or consumers find ways to reduce demand, either temporarily or permanently..."

In unregulated, competitive markets – workably competitive markets – firms can and do earn rates of return that are higher or lower than average, and price above their economic costs, in a manner that is not consistent with theoretical perfect competition. The "process" of competition naturally involves the unpredictable and asymmetrical "jockeying for position"

---

<sup>34</sup> Electricity Authority, *Interpretation of the Authority's statutory objective* (14 February 2011) at [A26] and [A27].

of the firms in the market, and fluctuations in the exact level of competition in the market at any static moment in time are therefore to be expected.<sup>35</sup> It makes little sense to talk about reduced competition within a workably competitive market framework over a time frame of weeks.

The Authority's focus on the short period of the UTS ignores the proper understanding of a workably competitive market, with its fluctuations and disorderly manner. Instead the Authority again applies a utopian, perfectly competitive market, that treats any deviation from the Authority's subjective expectations of (perfect) outcomes as a problem to be solved.

According to the supplementary consultation paper, "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." There is some missing logic in the supplementary consultation paper. The confluence of five factors are followed by an assertion that they resulted in a lessening of competition. The Authority then describes some correlation coefficients and says they are different to normal and makes the connection that the asserted lessening of competition must have bought this about. However, at no point is there any evidence that competition was in fact reduced; the Authority has implicitly assumed that there can be no other cause for the correlation coefficient differing – but then peculiarly acknowledges that the relationships break down at high levels of storage (and as is shown below the relationships break down when looking at any given month).<sup>36</sup>

Correlation is any statistical relationship between two variables or data sets. Crucially, the existence of a correlation is not in general sufficient to infer a causal relationship between variables. The Authority has made the critical error of assuming the correlation coefficients of the "objective comparator" are different to the correlation coefficients of the much shorter UTS investigation period (10 November to 6 January) *because of* a lessening of competition. This assumption is unsupported by any evidence presented to date by the Authority.

After almost a year of analysis on the question of whether or not a UTS has occurred, the Authority has not produced empirical evidence of a lessening of competition. Instead the Authority is relying on anecdotes from market participants (who all have their own agendas) and its own assertion that competition was reduced. As will be shown below, the statistical analysis does not strengthen the Authority's position. All it proves is that the alleged UTS

---

<sup>35</sup> *Wellington International Airport Ltd & Ors v Commerce Commission* [2013] NZHC 3289 (11 December 2013) at [19].

<sup>36</sup> See below at Part E of this submission.

period is within the range of outcomes that might be expected in the normal operation of the market.

The attached Sapere Report concurs and notes:<sup>37</sup>

“The Authority has not provided any description or analysis of how the factors it identifies reduced competition. The factor that is most obviously different in December relative to most counterfactuals is the very high inflows. An increase in inflows in a hydro generation system increases the fuel available to hydro generators, shifts the supply curve outwards, and *increases competitive pressure* in the wholesale market.”

---

<sup>37</sup> Sapere Report, attached, at [37].

## Part E: Market outcomes did not amount to a UTS

### The correlations used by the Authority amount to false scientism

As the Court of Appeal has recognised there is a risk that a focus on empiricism can lead to "false scientism [overtaking] what is in the end a fundamental judgment".<sup>38</sup> The UTS regime is designed to respond to clear and obvious problems that are capable of ready identification (within ten business days – clause 5.1A) and must be restored as soon as possible (clause 5.5). Instead, the Authority has undertaken detailed, time-consuming, and ultimately superfluous analysis that gives a veneer of science to the decision, but which does not change the fact these events do not amount to a UTS.

Table 2 provides an attempt at empiricism. However, it contains several flaws.

### Issues with the establishment of the “objective comparator”

The correlation analysis in the supplementary consultation paper is invalid and any conclusions drawn from it will be misleading. For statistical purposes the Authority constructs a supposedly “objective comparator” derived from selected long-term correlations over the past nine years. According to the supplementary consultation paper, “The comparator ... 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.”

Table 1 of the supplementary consultation paper goes through each set of market dynamics selected by the Authority for correlation analysis and describes the supposed links to competitive outcomes and the expected relationship. The suggestion throughout is that certain outcomes are “normal”, or “usual” or can be “reasonably expected”.

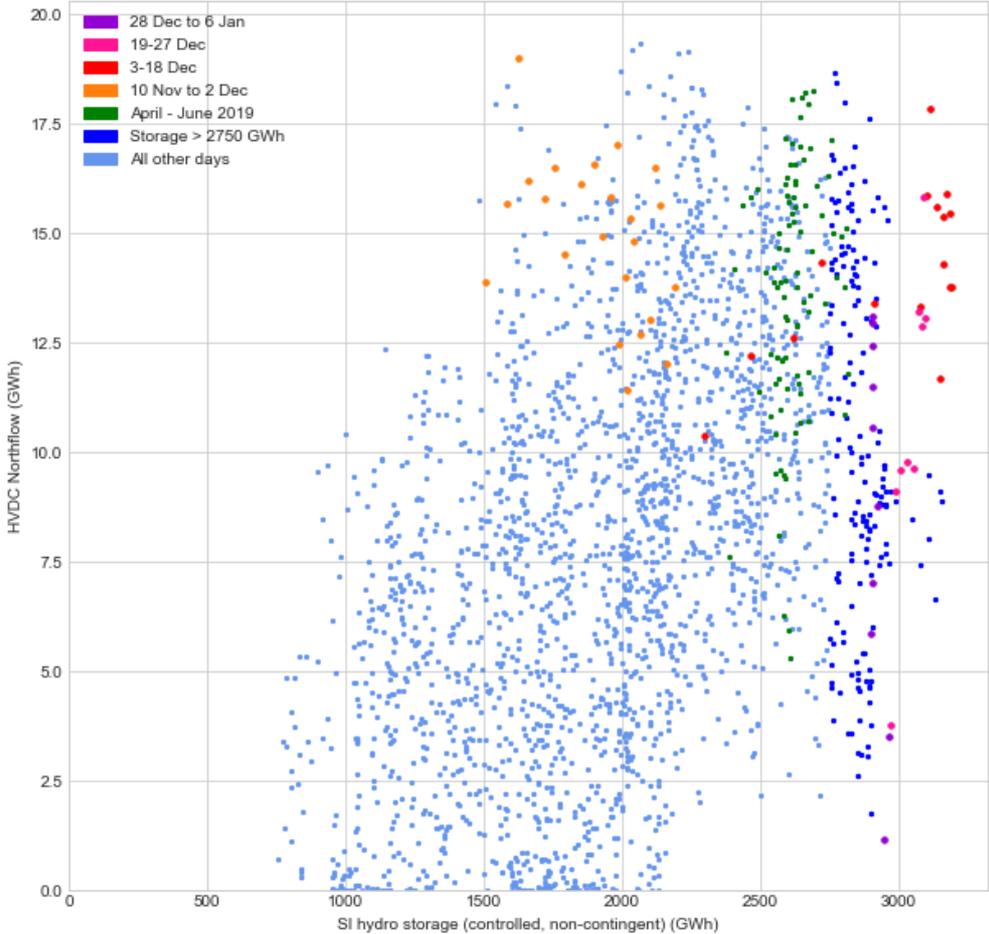
Plotting the Authority’s raw data for the “objective comparator” reveals that many of the correlations show a very weak or no relationship between the two factors assessed. While correlation can refer to any statistical association, it generally refers to the degree to which a pair of variables are linearly related. If we take for example South Island hydro storage and HVDC northward flows over the past nine years in Figure 3 below, the resulting scatter

---

<sup>38</sup> *New Zealand Bus Ltd v Commerce Commission* [2008] 3 NZLR 433 (CA) at [104] per Hammond J, cited with approval in *Godfrey Hirst NZ Ltd v Commerce Commission* [2017] 2 NZLR 729 (CA) at [36]–[37].

plot shows only an extremely weak relationship with wide variation. Given the widely distributed data set, it is difficult if not impossible for the Authority to draw conclusions about the relationship between these two factors and say what might be considered “normal”. A more accurate conclusion is that the normal operation of the market produces a wide range of different outcomes and that the UTS period does not appear inconsistent with the rest of the distribution.<sup>39</sup>

**Figure 3: Plotted daily observations of South Island hydro storage and HVDC northward flows**



*Data Source: Electricity Authority (GitHub)*

It is not surprising that there is only an extremely weak relationship with wide variation between the two factors above (or the other factors assessed by the Authority). This is to be expected when looking at only two variables, when the relationship will be affected by many other omitted variables. While the variability and range of contributing factors is apparent when looking at the scatter plots, that nuance is lost when the Authority reduces the data into a single correlation number for the full nine years.

<sup>39</sup> We will provide the Authority with the code used to create these scatter plots and the other charts in this Part.

By using pairwise correlations, the Authority has not adequately accounted for omitted variable bias. This is a necessary step if any results are to be considered valid.<sup>40</sup> Multiple regression analysis is the obvious candidate to account for omitted variable bias, but the Authority dismisses this approach owing to the presence of autocorrelation. However, autocorrelation is a common issue with economic and financial time-series and there are well established methods to account for this issue.

### **Issues with comparing the “objective comparator” to the UTS investigation period**

The Authority next compares the long-term correlations over the last nine years to the correlations over the alleged UTS period of 3 to 27 December (25 days). Unsurprisingly the correlations are different.

Timeframes for correlation analysis are important<sup>41</sup> and long-term drivers will be very different to short-term drivers. For example, within any given month there will be distinct generation and transmission outages, inflow events, demand patterns, and other factors, while the longer term correlations will be more driven by broad seasonal trends that are absent from the narrower time period. For example, the month of December (including the 3 to 27 December period analysed by the Authority) is characterised by a very different demand pattern to other months because of the Christmas holiday period. It is therefore misleading of the Authority to compare such different periods of time (one or two months versus nine years) and effectively ignore the short-term variability that is an expected part of the New Zealand electricity market.

All that the Authority’s statistical analysis shows is that one should expect large month-to-month variations in correlation results. Such an outcome undermines the idea of an “objective comparator” in this context. In reality there seems a high likelihood that any one month is likely to look just as supposedly “unusual” as the alleged UTS period.

The sensitivity to timeframe is clearly indicated by the difference apparent when comparing the correlations with the UTS investigation period of 10 November to 6 January (58 days) as opposed to the correlations with the alleged UTS period of 3 to 27 December (25 days).

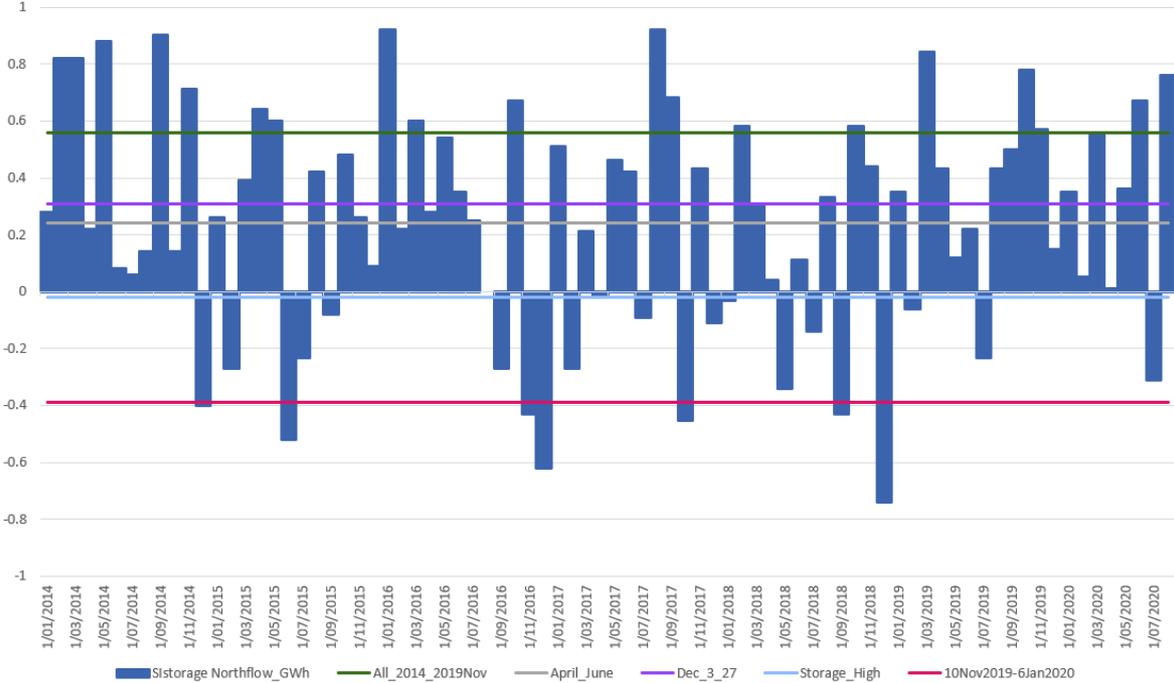
---

<sup>40</sup> Further, the Authority’s analysis uploaded to GitHub uses the default Pearson Correlation Coefficient which assumes both input variables are continuous, with no significant outliers, normally distributed, and the relationship is linear. However, all the data fails the Shapiro-Wilk test for normality (at a one percent level of statistical significance) and there are significant outliers.

<sup>41</sup> Particularly when there is autocorrelation in the data as noted by the Authority.

As an example, Figure 4 below shows monthly correlations of South Island hydro storage with HVDC north flow (one of the correlations identified in the Authority’s analysis). As can be seen, there is no clear pattern when looking at each month in the last nine years. The Authority’s “objective comparator” (the green line) is towards the fringes of what might be expected to occur in any given month, as is the investigation period 10 November to 6 January assessed by the Authority in Table 2 of the supplementary consultation paper (the red line). By contrast, the alleged UTS period (the purple line) and a similar period of spill in April and June 2019 look much closer to the median correlation. All of the lines fall within the distribution of what might be considered normal in any given month.

**Figure 4: Monthly correlations of South Island Hydro Storage with HVDC north flow**

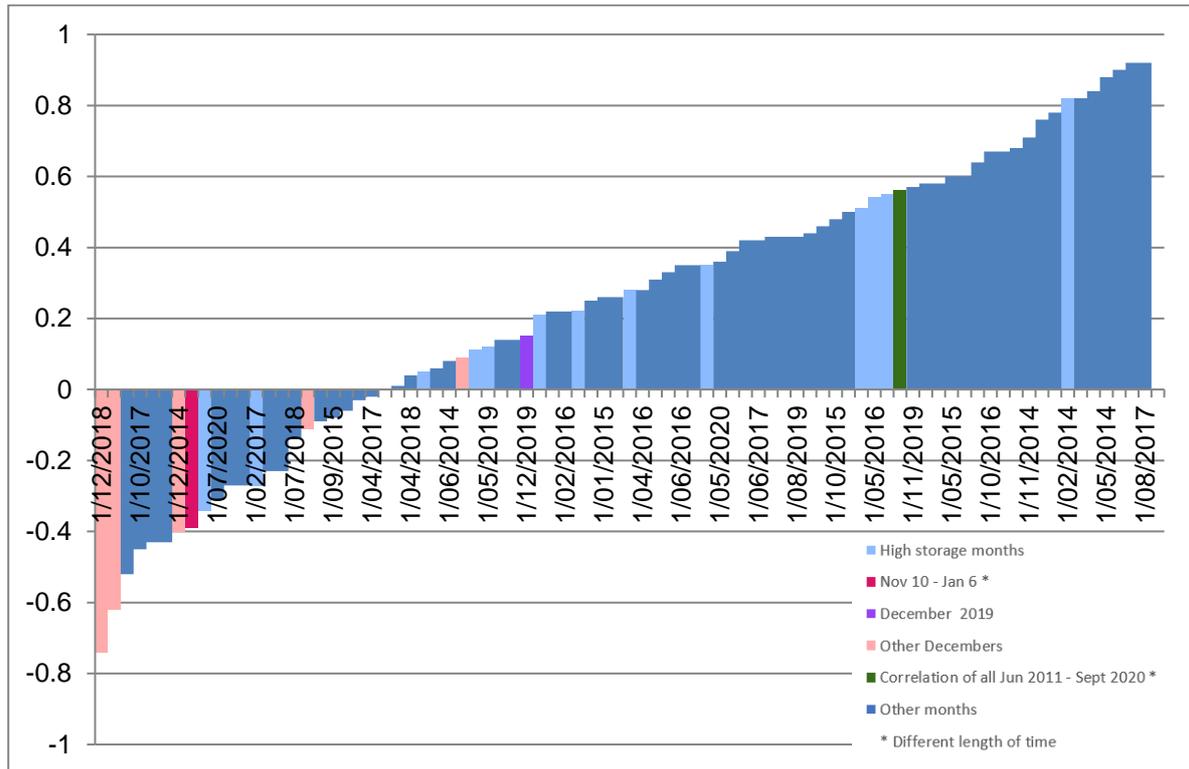


The same correlation data can be presented as an ordered range to more easily identify any tail or outlying periods as in Figure 5 below. Analysing multiple comparable timeframes (i.e. months) in this way is more meaningful than what the Authority has done as it enables an assessment of the distribution of correlation results and where the alleged UTS period lies within the expected range of outcomes for the relevant period of time. If the alleged UTS period was clearly separated from the fringes of the distribution it might be considered an outlier (and therefore unusual in some way). As can be seen the purple bar for December 2019 (i.e. the alleged UTS period of 3 to 27 December) is close to the middle of the distribution, while the Authority’s “objective comparator” in green is closer to the top of the range. The pink “UTS investigation period” (10 November to 6 January) appears closer to the bottom of the distribution but still well within the bounds of what might be considered

normal, and is unsurprisingly clustered with other December periods due to the lower demand over the holiday period.

Surprisingly, the Authority’s correlation analysis ignores demand as a driver of market outcomes. Many outcomes can be attributed to changes in demand, particularly over the Christmas and New Year holiday period when demand drops away significantly.

**Figure 5: Ordered monthly correlations of South Island hydro storage and HVDC north flow**



Meridian has undertaken monthly correlations for all the factors considered by the Authority in the supplementary consultation paper.<sup>42</sup> None of them show any meaningful pattern to suggest the alleged UTS period was statistically “unusual”. The alleged UTS period and UTS investigation period are never outliers in the distribution; for every correlation looked at by the Authority there are other months that look more “unusual” than the alleged UTS period and UTS investigation period.

One correlation distribution (between spot price and South Island hydro generation) shows the alleged UTS period near the top end of the distribution, however the top three observations are all December months suggesting the alleged UTS period is relatively normal when compared to other months of December. The Authority’s statistical approach

<sup>42</sup> All of these charts have been appended to this submission.

therefore proves nothing other than that the alleged UTS period is within the range of outcomes that might be expected in the normal operation of the market.

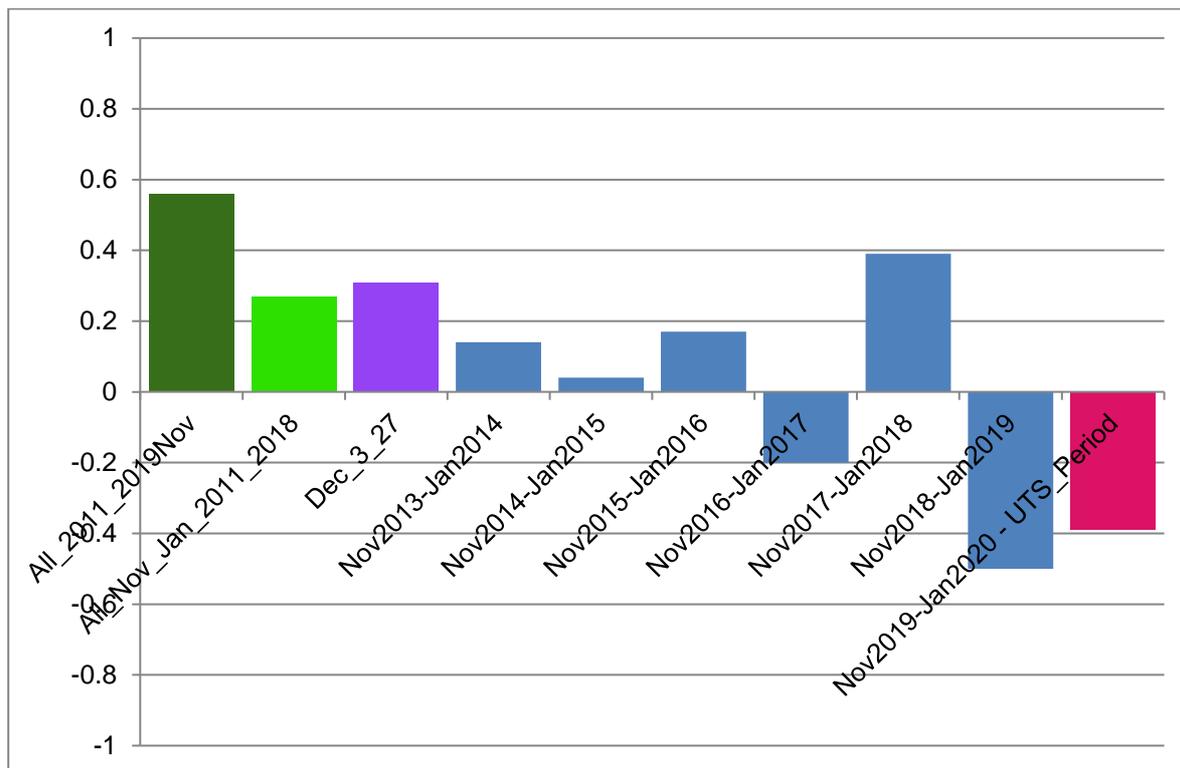
At paragraph 4.11 of the supplementary consultation paper, the Authority states:

"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."

When looking a data only from 10 November to 6 January in each year, the Authority makes the same mistake of assuming the correlation results for the entire data set (all of those dates over the past nine years) represent "usual" market outcomes, and ignores the significant variability between each of the 10 November to 6 January periods. As an example, Figure 6 below shows that each "10 November to 6 January" period (in blue) looks very different and the "UTS investigation period" (in pink) is less "unusual" than other periods. On the left of each chart for reference are the correlations over different timeframes (i.e. *not* 10 November to 6 January periods):

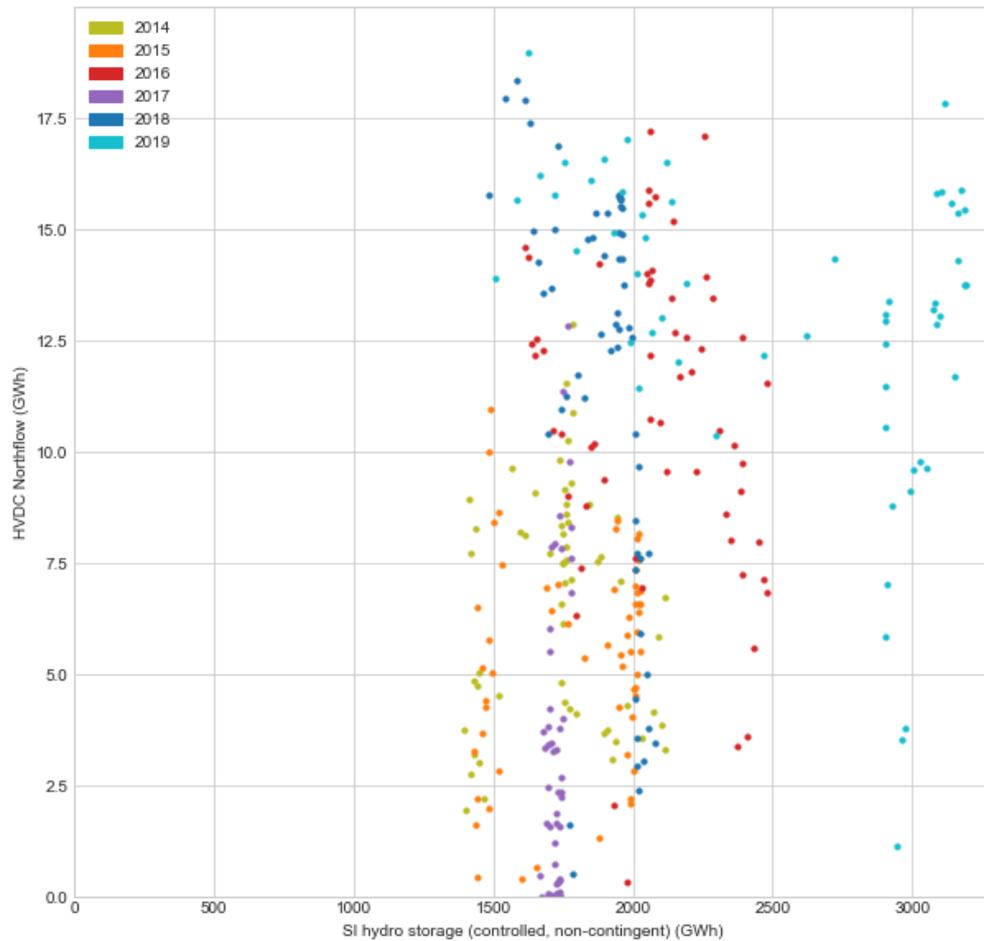
- Dark green: All of 2011 – 2019 (the Authority's "objective comparator")
- Light green: All of the "10 November to 6 January" periods combined (which the Authority says is "very similar" to the "objective comparator")
- Purple: The shorter "alleged UTS period".

**Figure 6: Correlations of South Island hydro storage and HVDC north flow over various 10 November to 6 January periods**



When the raw data used to form the correlations in Figure 6 above is plotted it becomes evident that omitted variables are likely to be causing the differences. In Figure 7 below, the daily observations from each individual 10 November to 6 January period have been colour coded to reveal the very different trends for each individual year (as well as the extent of variability) compared to the overall trend and variability for the entire data set.

**Figure 7: South Island hydro storage and HVDC north flow over various 10 November to 6 January periods**



*Data Source: Electricity Authority (GitHub)*

**The inadequacies of the Authority’s statistical analysis are highlighted by internal inconsistencies in the supplementary consultation paper**

Paragraph 4.15 of the supplementary consultation paper notes that “because the mid-year spill period [April to June 2019] 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.” The Authority is effectively saying here that differences in demand or gas supply are sufficient to make two periods not directly comparable – yet the Authority then goes on to construct an “objective comparator” that covers periods of demand and thermal fuel supply that are very different to the period in question and nonetheless claims that they are comparable. The Authority seems quick to disregard relevant facts that do not fit the Authority’s narrative, yet will happily

overlook a vast array of factors that might distinguish the “objective comparator” and the alleged UTS period.

Paragraph 4.7 of the supplementary consultation paper states that:

“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.”

This statement is unusual. The Authority says it cannot include a period of HVDC outage in the correlation analysis but over the past nine years there have been other HVDC outages or restrictions not just that which began on 7 January, so the “objective comparator” itself includes periods of different HVDC capability. The Authority also chooses to exclude price separation and HVDC north flow data from the “objective comparator” prior to the operation of Pole 3 of the HVDC. Overall, the Authority appears to be cherry picking what goes into the “objective comparator” and UTS investigation period and what is excluded.

The statement above is revealing because the Authority is effectively saying that inclusion of one short-term factor (an HVDC outage) makes it impossible to tell what is driving differences in correlations with the “objective comparator”. However, as discussed there are a wide range of factors that can have a significant impact on correlation analysis. The Authority has arbitrarily decided to exclude one of these factors but not considered the impact of others on either the “objective comparator” or the period being compared to it.

We set out below several examples of factors that would impact on observed correlations:

- Transmission outages can have a significant impact on market outcomes. On 8 December flooding of the Rangitata River caused extensive damage to nine transmission towers and an outage on Transpower’s ISL\_LIV\_1 circuit, which in turn caused an overload of AVI\_BEN\_1 for the loss of AVI\_BEN\_2 (and vice versa) effectively limiting total generation from Aviemore and Waitaki stations to around 200 MW, compared to the nameplate capacity of 325 MW for the two stations combined. This distinguishes the alleged UTS period from others.

- Generation outages can have a significant impact on market outcomes.
- Throughout the nine years of the “objective comparator” there have been significant changes in generation through new builds and retirements (for example Southdown and Otahuhu). Different market outcomes might therefore be observed at different times and the “objective comparator” makes no attempt to account for these changes.
- Periods of thermal fuel restriction have undoubtedly had a significant impact on market outcomes over the past two years following the 2018 Pohokura outage. The Authority itself has noted this effect and the way that greater uncertainty is being factored into thermal offers.<sup>43</sup> Again the “objective comparator” makes no attempt to account for this recent change, which arguably means that for any period in the last two years different market outcomes might be reasonably expected compared to outcomes further back over the last nine years.
- Significant changes in demand could also drive different market outcomes. For example, the reopening of pot line four at the New Zealand Aluminium Smelter.

The factors above, and no doubt other commonplace examples would, by the Authority's logic, make it similarly impossible to determine whether differences between the “objective comparator” and any assessed period are attributable to the so-called confluence of factors or might be attributed to some other driver embedded in the comparator itself of the period being compared.

The Authority has dismissed looking at periods of high storage as the relevant comparator against which to compare the UTS period. Paragraphs 4.9 and 4.10 of the supplementary consultation paper say:

“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.

---

<sup>43</sup> <https://www.ea.govt.nz/assets/dms-assets/26/26029Spot-price-changes-in-2019.pdf>

However, for sensitivity analysis we did compare to previous periods of high South Island storage (results not shown here). 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.”

The reason the Authority gives for not comparing similar periods of storage is that it wants to look at the response of variables when storage is changing. This dismissal is illogical for three reasons.

- Firstly, many of the correlations considered do not include storage, for example correlations between spot price and hydro generation or between thermal generation and hydro generation.
- Secondly, it is unclear why the Authority has identified changes in storage as of paramount importance for the correlation analysis. During the alleged UTS period South Island catchments were in flood, so high storage or spill would seem more pertinent. Surely the best comparator is with historic periods when the market was in a similar state (high storage) and which the Authority and the participants have already accepted to be periods of normal market operation. Comparing periods of similar storage would mean less variability and the Authority could focus more specifically on any changes in competition or other peculiarities. Instead, all the Authority has done is compare a high storage period to a wide range of periods when storage was variable and most of the time not high. Unsurprisingly, the market operates differently between these periods.
- Thirdly, high storage periods are generally preceded by high inflows and rapid changes in storage up to the point of maximum lake levels. The relationship between the change in storage levels and other factors could therefore easily be compared to similar high storage periods by simply including in the comparison a period ahead of each high storage period. It would be far more useful for the Authority to look at these periods of high storage and rapid change in storage rather than all of the last nine years (which includes many periods of relatively stable storage). Without doing this, all the analysis really shows is that the market operates differently during periods of high inflows and storage. The Authority has acknowledged as much by saying that “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.” None of the many historic periods of high inflows and storage have been found to constitute a UTS.

## Sapere identifies similar issues

The attached Sapere Report is similarly critical of the Authority's statistical analysis:<sup>44</sup>

"With regard to the Authority's methodology, there is no reason to expect, a priori, estimates of short-term (such as a month or the proposed UTS period) and long-term correlations (estimated over nine years) to be similar. Estimation periods are important for correlation analysis as idiosyncratic and seasonal factors that affect correlations in the short-run tend to average out in long-term correlations."

## Conclusion on the use of statistical analysis

Meridian concludes that:

- The "objective comparator" is not objective and has not been established in a way that enables the identification of what is "usual", "normal", or "to be reasonably expected". Rather, each of the binary pairs in the so-called objective comparator show a wide range of different outcomes at different times, all of which have previously been considered part of the normal operation of the market. The wide range of outcomes is unsurprising given the multitude of factors that influence market outcomes.
- When comparing that wide range of "normal" outcomes with the outcomes over the alleged UTS period (3 to 27 December) or to the UTS investigation period (10 November to 6 January) it is clear that the results are very sensitive to the short periods of time for comparison, with very different results for each of the two UTS periods. Indeed, comparing any given month to the objective comparator shows a very wide range of results. When compared against the monthly correlations over time the results for the UTS period (however defined) look entirely unremarkable.
- The only reasonable conclusion from the correlation analysis is that the binary pair correlations vary greatly over time, and the outcomes in the UTS period are well within the range that has previously been considered part of the normal operation of the market.
- We are unsure why the Authority has insisted on comparing long run correlations over a wide range of market conditions to one period of specific market conditions. This is especially unusual when the Authority itself has conceded that "the normal relationships do appear to break down during periods of high storage" and none of the many historic periods of high inflows and storage have been found to be a UTS.

---

<sup>44</sup> Sapere Report, attached, at [29].

# Part F: The Authority's legal approach remains fundamentally flawed

## Introduction

The Authority's proposed five-step test is not consistent with the Code. Meridian has previously set out in detail the proper approach to interpreting the UTS regime.<sup>45</sup> Rather than rectifying the flaws in its legal approach evidenced in the preliminary decision, the Authority, in the supplementary consultation paper, has stepped yet further away from the Code provisions. The novel test in the supplementary consultation paper has several flaws.

### **A UTS requires disfunction, not “unusual” circumstances and “unusual” outcomes**

The Authority's interpretation results in too low a threshold for a UTS. For example, "unusual" factors could capture any line outage. It would result in consideration of too many minor events to accurately isolate a UTS. The wholesale electricity market is sufficiently complex that it is not unrealistic to suggest that "unusual" circumstances actually occur quite frequently. Such unusual events occurring not infrequently is why the Code, properly interpreted, has a safe harbour. That safe harbour ensures that normal market behaviour in response to unusual events is not considered a UTS. The UTS regime has been (and should be) reserved for truly exceptional events amounting to disfunction of the market.

The Authority's jettisoning of that safe harbour coupled with the low threshold for circumstances that may give rise to a UTS has improperly expanded the UTS regime. The Authority's approach to what may amount to a UTS is too uncertain, one-sided and amounts to too low a threshold. Meridian's record breaking December generation was unusual but it was not identified in the confluence of events, seemingly because it tells against a UTS finding. Similarly, market participants' reactions to planned outages are considered "unusual" yet that is standard market behaviour.

---

<sup>45</sup> Meridian submission, available [here](#), at Part E.

## **The Authority is incorrectly attempting to turn the UTS regime into an optimisation regime**

The Authority is incorrectly treating the UTS regime as a market optimisation regime by comparing its hypothetical and subjective expectations of a workably (in application, close to perfectly) competitive market and the events of December 2019 and treating reduction from perfection as a UTS. However, the Code's UTS framework is not an optimisation regime. It is a regime of last resort. It responds to unforeseen or exceptional circumstances and aberrant behaviour. The Authority's approach fails to recognise the high threshold for finding a UTS, which is commensurate with the significant and immediately corrective nature of the remedies that can apply if a UTS is found.<sup>46</sup>

The Authority's prior proper interpretation of the Code, which appropriately recognised a safe harbour for normal market expectations, has been abandoned without explanation or justification.<sup>47</sup> Indeed, it appears that the Authority's approach to formulating a test for a UTS has been to work backwards from a belief that more generation could have occurred in December 2019 to finding a UTS rather than starting with the Code, ascertaining what it means, and then applying it.

The Authority's interpretation of the UTS regime means that "unusual circumstances" leading to "unusual outcomes" can be "corrected". That correction is not to "restore normal operation" (per clause 5.5 of the Code), but rather to replace the so-called "unusual" outcome with a result that matches the outcome that the Authority thinks should have been achieved with perfect competition. In this way, rather than returning the market to normal the Authority's approach *optimises* outcomes. That optimisation is not done on a long-term basis or on a basis with proper analysis, but is a simple optimisation to the Authority's view of market perfection across a narrow timeframe. The subjectivity of that approach and its result is heightened by the Authority's discretion to decide what factors or outcomes will amount to "sufficiently unusual" to warrant optimisation.

It is inappropriate for the Authority to have so fundamentally altered its approach to the UTS regime and abandoned its previous interpretation (especially the safe harbour) in the process of applying the UTS regime. The Court of Appeal has been explicit about the value of certainty under the rule of law: "Adherence to past decisions promotes certainty and

---

<sup>46</sup> Meridian submission, available [here](#), at [42]–[44]; and see r 5.2.

<sup>47</sup> Meridian submission, available [here](#), at [44]–[46]; citing Electricity Authority *Final decision on the UTS of 26 March 2011* (2011) page 9; Electricity Authority *Decision on claim of an undesirable trading situation* (2016) page 3; and Electricity Authority *Decision on claim of an undesirable trading situation* (2018), page 9.

stability. People need to know where they stand, what the law expects of them. So do their legal advisers."<sup>48</sup> The Authority's present approach would result in a new test (unknown to the market participants at the time of the alleged UTS) being applied retrospectively to market participants who potentially face significant effective penalties for breaching a rule that they did not know existed at the time of the conduct in question. In short, the approach adopted amounts to a retrospective penalty. Further, the regime itself is designed to uphold market confidence. The Authority's approach to the UTS regime is so unclear and inconsistent as to itself damage confidence in the market and its regulation.

The Authority's optimisation test for a UTS cannot be right as it has taken the Authority so long to identify the potential UTS. The Authority is presently targeting a decision date of December 2020 for its consideration of events in December 2019. The Authority's need to undertake exceedingly complex and detailed retrospective analysis to find a UTS is proof positive that the events in question were not a UTS, which by definition is an obvious and significant problem capable of ready identification and immediate correction. A test that finds a UTS only following such analysis must be incorrect. The Authority's approach has seen almost a year pass without regulatory interference to "restore" the market. That the market has continued to operate without such regulatory restoration indicates the events of December 2019 were not a UTS.

### **The Authority is still imposing a shadow rule change by way of UTS analysis**

The Authority has received submissions that a UTS investigation is not the proper way to effect a rule change.<sup>49</sup> Nevertheless, the modified approach disclosed in the supplementary consultation paper still amounts to de facto or shadow Code change.

If the Authority wants to change market participants' behaviour, that is a project for a Code change not a UTS investigation. The gravamen of the Authority's approach remains that Meridian should not have spilled water when it could have offered that water for generation at lower prices because that additional generation would have made the wholesale market more efficient. This can be seen most clearly by the Authority's analysis in part 5 of the supplementary consultation paper where the potential for a "more efficient" market is sufficient to warrant consideration of a longer UTS period. Code change is the proper means

---

<sup>48</sup> *R v Hines* [1997] 3 NZLR 529 (CA) at 537 per Richardson P and Keith and at 587 per Blanchard J, citing with approval *Collector of Customs v Lawrence Publishing Co Ltd* [1986] 1 NZLR 404 at 414–415.

<sup>49</sup> Meridian submission, available [here](#), at Part F; Brattle Report, available [here](#), at Parts III and IV; Sapere Report, available [here](#), at [5]–[7]; Meridian cross-submission, available [here](#), at Part E; and Contact cross-submission, available [here](#), at [32]–[34].

of introducing measures intended to make the market more efficient. The UTS regime is not.

The Authority also sees "reduced competition" as a problem that the UTS regime's express corrective function needs to fix, i.e. it is a mandatory part of the new test articulated for the first time in the supplementary consultation paper. Generally speaking, changes in competitive dynamics can and do send important signals to the market. For instance, a reduction in wholesale competition could signal the benefits of investing in new generation. If the UTS regime is to be used to "correct" such signals the proper operation of the market will ultimately suffer.

Of course, should the Authority consider that the market is in need of reform it can consider such changes. That consideration, however, must be undertaken in the proper way, not by a UTS side wind.<sup>50</sup>

### **The Authority's approach is incapable of application by market participants in real time**

The Authority's approach cannot be used by market participants to guide their conduct. It requires analysis that simply cannot be undertaken by market participants at all, let alone in real time in response to changes in the fast-moving wholesale electricity market.

The Authority must formulate a test for the UTS regime with sufficient precision to enable a market participant to regulate its own conduct in accordance with the test.<sup>51</sup> Far from providing the appropriate certainty and clarity to allow market participants to know where they stand and what the law expects of them,<sup>52</sup> the Authority's approach can be best characterised as:

- Involving a legal test that has been in flux. Not only has the Authority's approach changed from that applied in its prior decisions (including the abandoning of the safe harbour for normal market operations and behaviour), but it has changed between the preliminary decision and the supplementary consultation paper.

---

<sup>50</sup> Meridian submission, available [here](#), at Part F; Brattle Report, available [here](#), at Parts III and IV; Sapere Report, available [here](#), at 5–7; Meridian cross-submission, available [here](#), at Part E; Trustpower submission, available [here](#), at [2]; Contact submission, available [here](#), at [32]; and Mercury submission, available [here](#), at [3].

<sup>51</sup> See the discussion in *Observer Publications Ltd v Campbell 'Mickey' Matthew* [2001] UKPC 11 at [27]–[29]; and see *TV3 Network Services Ltd v Holt* [2002] NZAR 1013 (HC) at [23].

<sup>52</sup> *R v Hines* [1997] 3 NZLR 529 (CA) at 537 per Richardson P and Keith and at 587 per Blanchard J, citing with approval *Collector of Customs v Lawrence Publishing Co Ltd* [1986] 1 NZLR 404 at 414–415.

- Using as a framework for analysis, a "confluence of 'unusual' factors", that has no fixed or predictable content. As a result, market participants cannot know what factors the Authority will consider sufficiently "unusual" to warrant consideration in a future UTS investigation. Further, market participants cannot know in real time all of the "factors" the Authority will look at, given many relate to market participants' separate and confidential commercial decisions and operational/commercial constraints that cannot and should not be known to other market participants, whether in real time or after the fact.
- Driven by hindsight-based empirical analysis that relies upon perfect market information and complex and time-consuming analysis.

For Meridian to have avoided taking actions that, on the Authority's analysis contributed to a UTS, it would:

- need to have divined the Authority's new approach to the UTS test (which is not the test prescribed in the Code nor that applied in any prior decisions, nor indeed that in the preliminary decision, but rather the test now disclosed for the first time in the supplementary consultation paper in November 2020); and
- having divined the correct legal approach, Meridian would then have had to apply it to its generation strategy, which would involve:
  - correctly guessing what factors the Authority would consider "unusual" (including that Meridian's record December generation was *not* unusual);
  - understanding how the confluence of those factors would impact market competition;
  - analysis of whether "unusual market outcomes were arising";
  - having access to information about its competitor's actions, for instance about Contact's spill gates,<sup>53</sup> and forward contract positions, that are not available to it and should not be available to it;
  - undertaking the equivalent to the Authority's detailed statistical analysis on *each* potential generation offer across the period of the UTS investigation.

All of this would have had to happen while Meridian was managing, in real time, extraordinary and exceptional hydrological events that presented real health and safety risks. The Authority's test is therefore unworkable in practice.

---

<sup>53</sup> Supplementary consultation paper at [3.8(b)].

## Part G: Extension of the UTS period

### **Procedural flaws in consideration of a longer UTS period**

In Part 5 of the supplementary consultation paper the Authority proposes consideration of a UTS through until 27 December 2020 rather than 18 December 2020 as in the preliminary decision.

This change in end date coupled with the supplementary consultation paper focussing only on the first three of the five-step test means that no participants have had occasion to consider the Authority's analysis of steps four and five in relation to the period 18 to 27 December 2020.

If the Authority were to find a UTS in that extended period it would be doing so without proper regard to the basic requirements of natural justice.

### **An extended timeframe would ignore the UTS test in the Code and the Authority's own confluence of factors**

The supplementary consultation paper offers limited rationale for the potential increase in the timeframe of the alleged UTS period (for a further nine days to 27 December 2019). The Authority notes that prices fell on 18 December 2019 and that the price paid by purchasers was the key concern in setting the original timeframe at 3 to 18 December. However, the Authority appears to see some merit in the claim by Haast 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." The Authority asserts that "had this displacement happened the overall dispatch would have been more efficient".

We first consider the newly floated end date of 27 December 2019.

The only reason given by the Authority for an end date of 27 December 2019 is that Contact stopped spilling at Clutha on that date and that Contact's operation of spill gates during spill was one of the five factors that might have reduced competition. The Authority says that "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".

Even if the Authority, with perfect hindsight and access to a full market dataset, is able to come up with an alternative market outcome it thinks would have been “more efficient” (i.e. something closer to perfect competition outcomes) that is not the test for a UTS in the Code. It would be truly concerning and undermine confidence in the market if the Authority thought anything other than what it considered with hindsight to be ideally efficient or perfectly competitive could be deemed a UTS. Wholesale participants would have no faith in final prices and the floodgates would be opened to any number of self-interested or vexatious claims for the Authority to find a UTS in a range of unremarkable situations where perfect hindsight, information, and extended analysis might enable the identification of a slightly more efficient outcome.

As noted above in Part D, Contact’s behaviour was not unusual, and it was in fact an active participant in the price discovery process. Even assuming (wrongly) for a moment that Contact’s behaviour was unusual and lessened competition, that is only one of the five factors identified in the “confluence” and several of the other factors (which as an aside were likewise not unusual) persisted beyond 27 December 2019. The Authority notes the confluence of factors “together or alone, were unusual”. However, the reasoning in respect of duration suggests that without Contact’s behaviour there was no UTS, regardless of the other factors persisting.

The Authority does not apply the same logic to November 2019 where it says the “confluence of factors and the consequent reduction of competition was not as pronounced in November” despite, again, the only missing factor in the “confluence” being Contact’s operation of its spill gates. These inconsistencies reveal the Authority’s determination of different UTS periods to be entirely arbitrary.

### **It is far from clear that North Island generation could have been displaced**

Next we consider the Authority’s assumption that North Island generation could have been displaced over this period.

The fact the Authority has more information available to it in hindsight across the entire market does not reflect workable competition and the normal operation of the wholesale market where parties have imperfect information. There are also some drivers of competitive behaviour that the Authority does not seem to fully understand or recognise. For example, the portfolio positions of generator retailers incentivise them to offer contracted volumes at very low prices, as revenue is earned through contracts and not in the spot

market. This dynamic means that North Island hydro and thermal operators had contract positions to cover during the alleged UTS period and that, while the Authority might think it would be more efficient to displace those generators, the result may well be sub-optimal from the perspective of those generators.

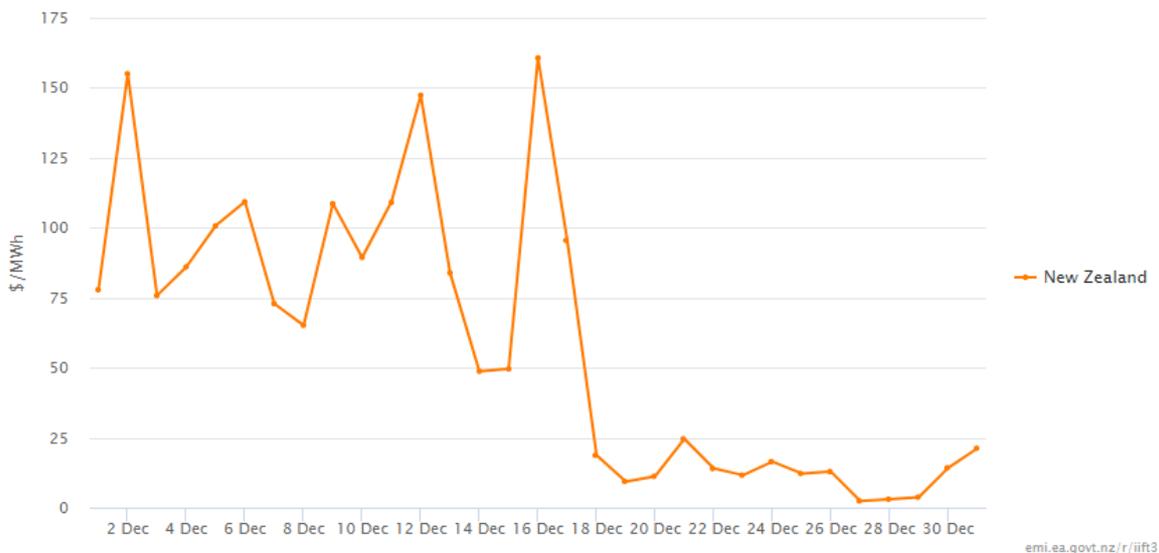
Rerunning vSPD with different South Island hydro offer prices shows that if all South Island hydro offers were reset at \$10/MWh (regardless of any hydraulic, operational, or consent limitations) this would in fact *decrease* the amount of South Island hydro generation and *increase* the amount of water spilled from South Island hydro stations. South Island spill would only be reduced (assuming a static view of the market and no adjustments from North Island generators to cover contract positions) at prices closer to \$6/MWh. However, this assumes a static market in which no North Island generators respond to changes in offers, in particular to ensure that they continue to generate contracted volumes. This is an unrealistic assumption and accordingly the Authority's view that additional thermal generation might have been displaced after 18 December 2019 is without merit.

Not only does one need to assume a static market to suggest the displacement of North Island generation, one also needs to assume that forcing South Island hydro generation offers to around \$6/MWh is feasible without breaching market fundamentals and forcing generators to offer at prices below their operating costs. HVDC charges and operating and maintenance costs for South Island generators are, by Meridian's estimates, higher than the low offer prices the Authority seems to suggest would be required to displace North Island generation and avoid a UTS finding.

### **If anything, wholesale prices appear unusually low during the extended period**

The Authority is suggesting that a UTS may have occurred from 19 to 27 December 2019 when, as shown below in Figure 8, market prices were around \$15/MWh on average over that period.

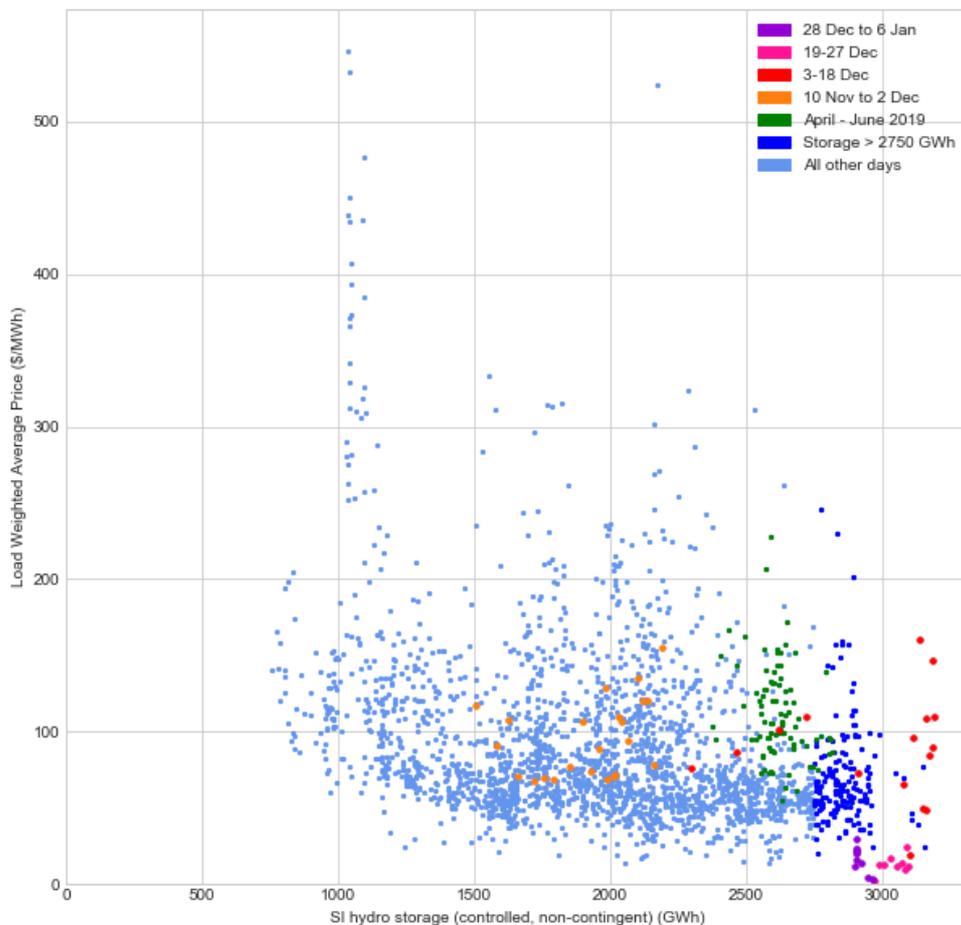
**Figure 8: Demand weighted daily average wholesale prices for December 2019**



The Authority seems to be saying that normal market operations (in the absence of the supposed confluence of factors and lessening of competition) should be expected to either drive down wholesale prices to well below \$10/MWh from 18 December 2019 or to have price remain much the same but with a greater share of North Island generation, and anything other than that perfectly efficient outcome must be a UTS.

In terms of the price level, the Authority’s own statistics from the last nine years at Figure 9 below show that wholesale prices this low would be inconsistent with previous experience (even at times of high storage). In fact, the wholesale prices seen between 18 December and 27 December appear to be an outlier and are, if anything, unusually *low*.

**Figure 9: Plotted daily observations of South Island hydro storage and wholesale price**



*Data Source: Electricity Authority (GitHub)*

The pink dots indicate daily average wholesale prices for 19 to 27 December and are clearly below the rest of the distribution for the preceding nine years (including many periods of high storage), indicating that prices if anything were *lower* than one might have expected given the levels of South Island hydro storage at the time.

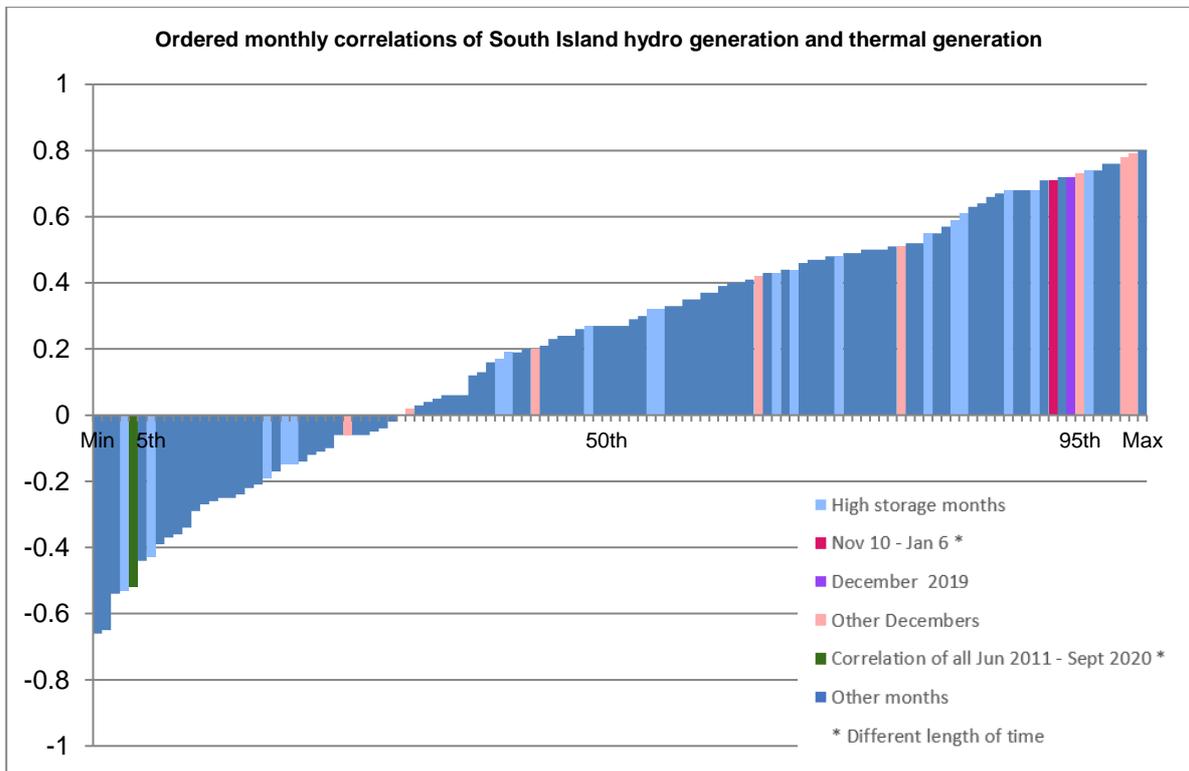
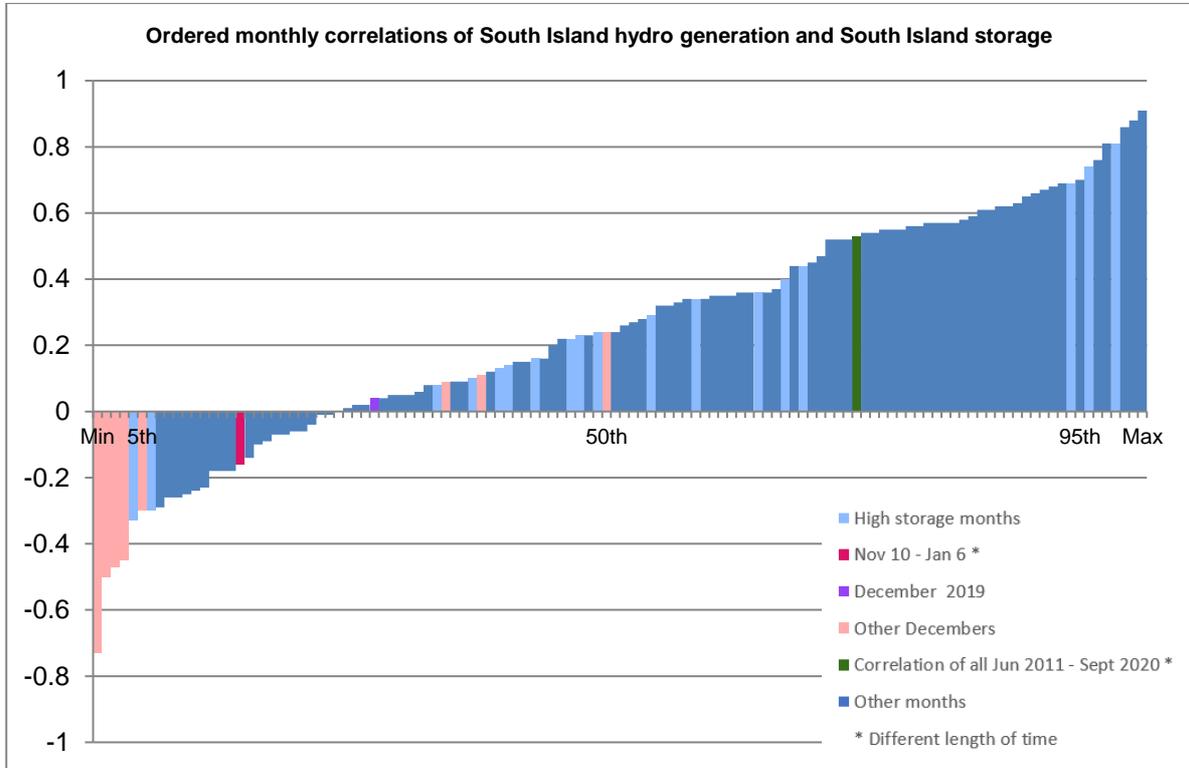
It would be truly extraordinary if the Authority found that confidence in or the integrity of the wholesale market was threatened because wholesale prices over a relatively short period of time, while lower than what might be expected from comparable periods in recent history, should have been even lower. Similarly, it would be extraordinary if confidence in the market was deemed to be threatened merely because the Authority considered some rearrangements of the merit order of dispatch would have been more efficient, with no significant effect on final prices.

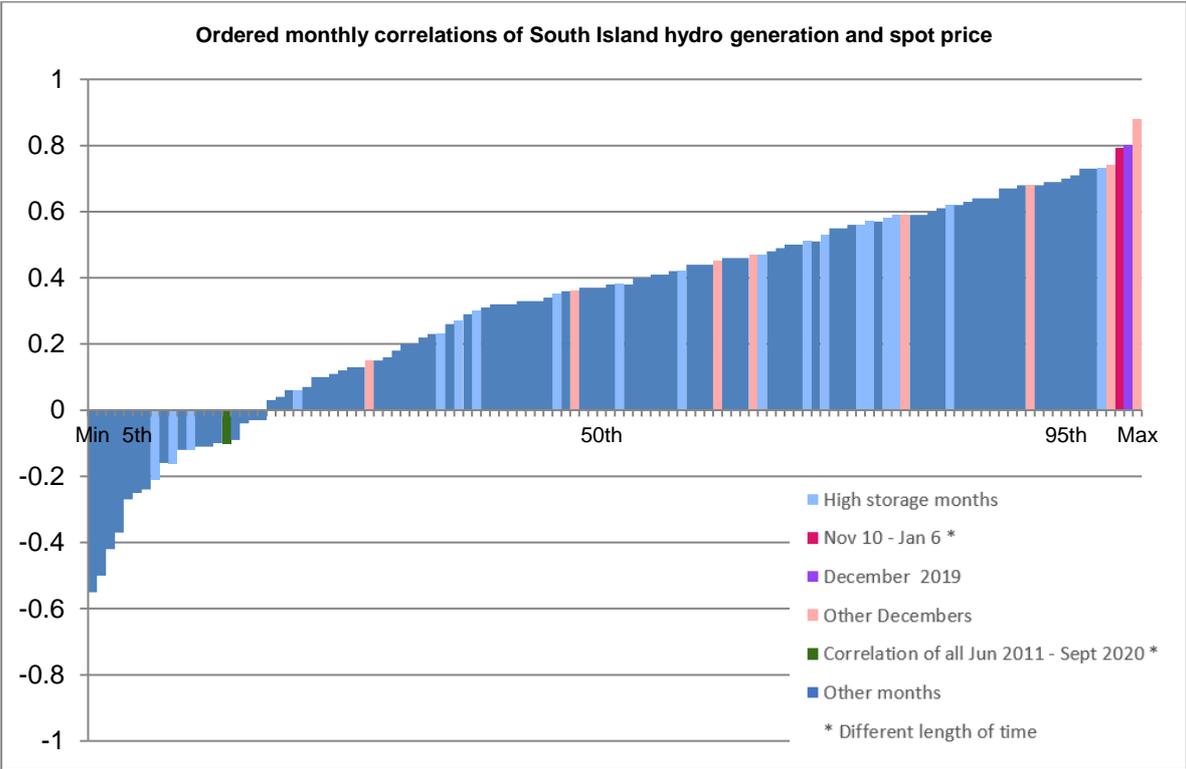
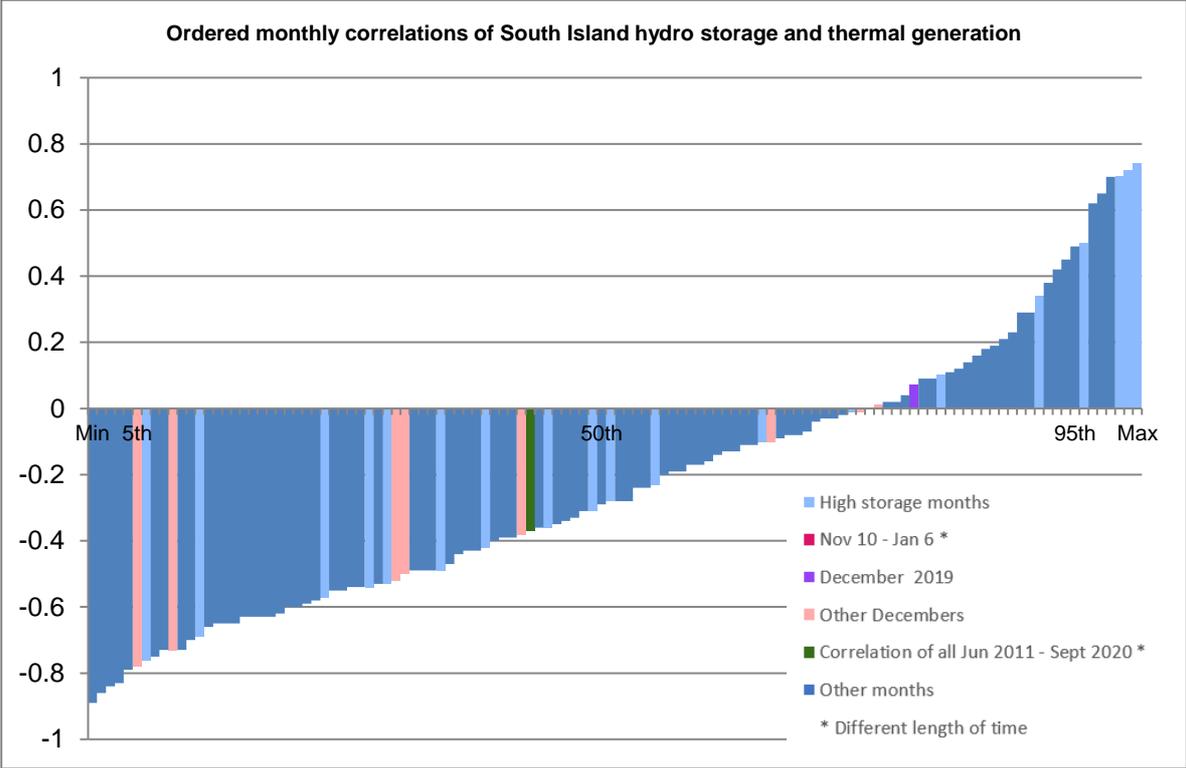
If wholesale prices at this level or a suboptimal order of dispatch can give rise to a UTS then *any* trading period could be claimed to be a UTS. With perfect hindsight and information the Authority will invariably be able to find market outcomes that it subjectively considers more

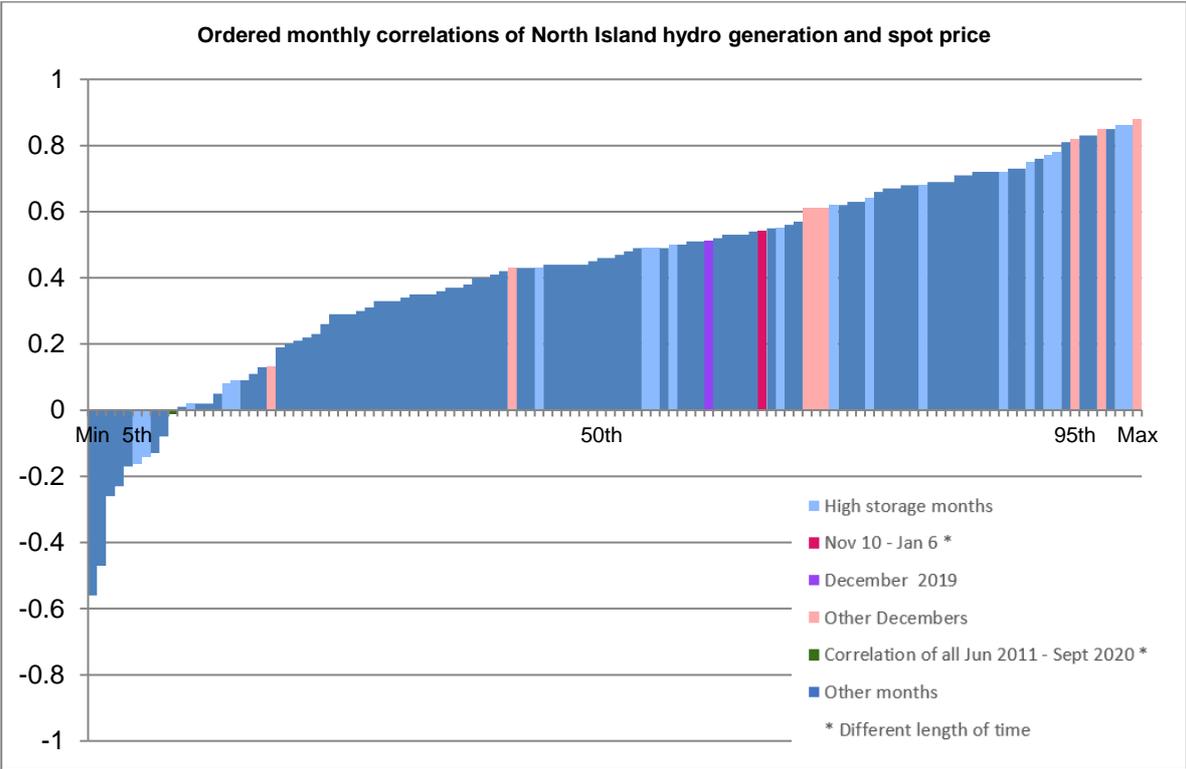
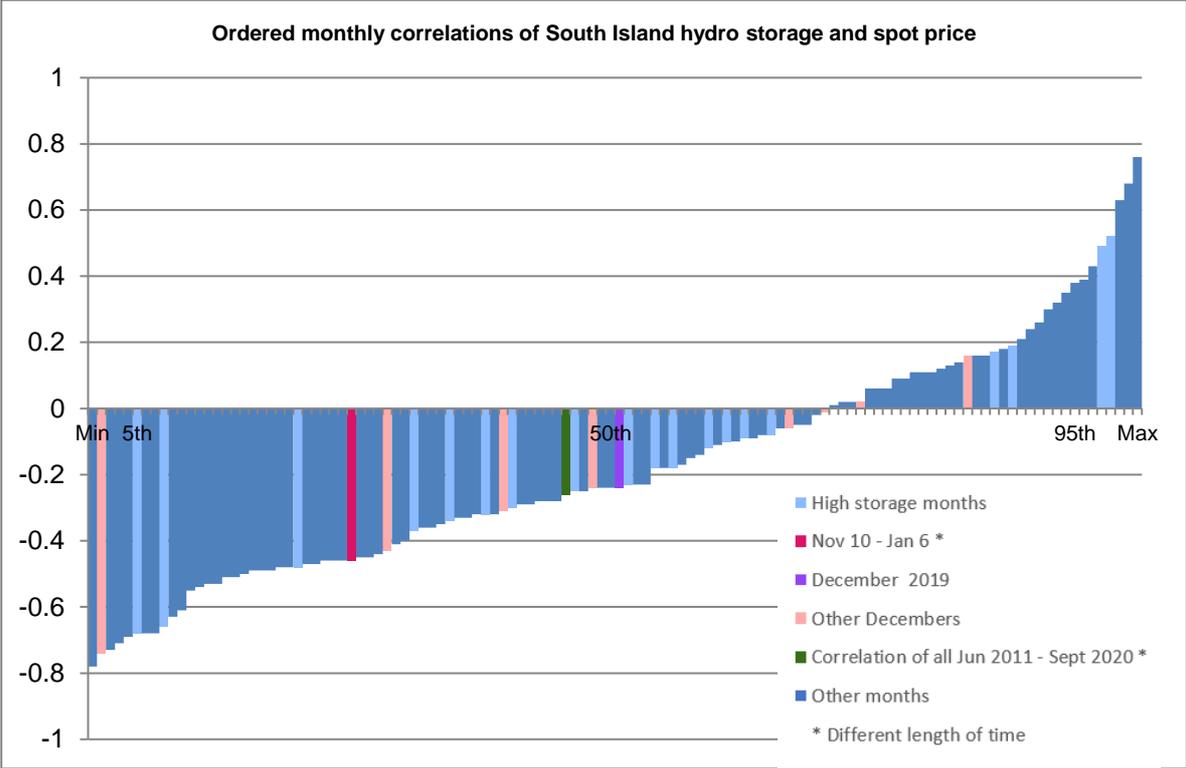
efficient or better reflect perfectly competitive outcomes (irrespective of the extent of any increase in efficiency, whether the operators of generation plant agree from their own portfolio perspectives, or whether there is any material impact on final prices). The scope of what might be claimed to be a UTS would therefore be vast and apparently unchecked by the UTS provisions in the Code.

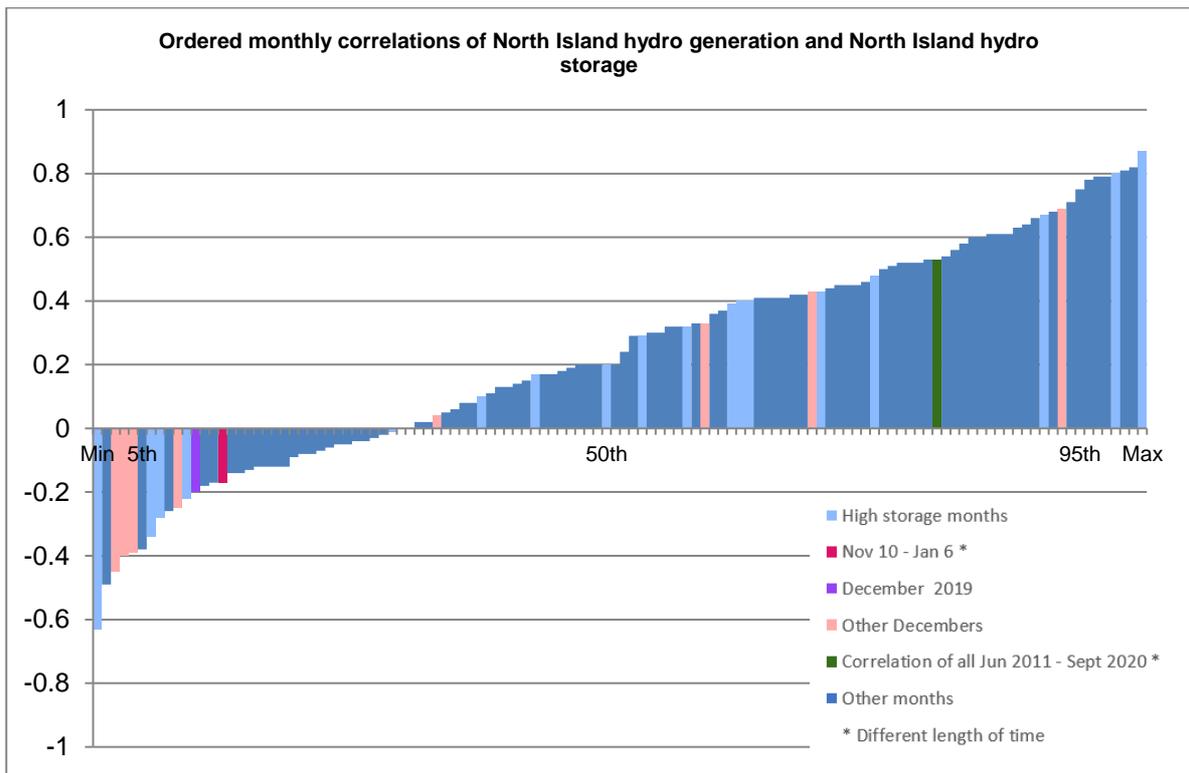
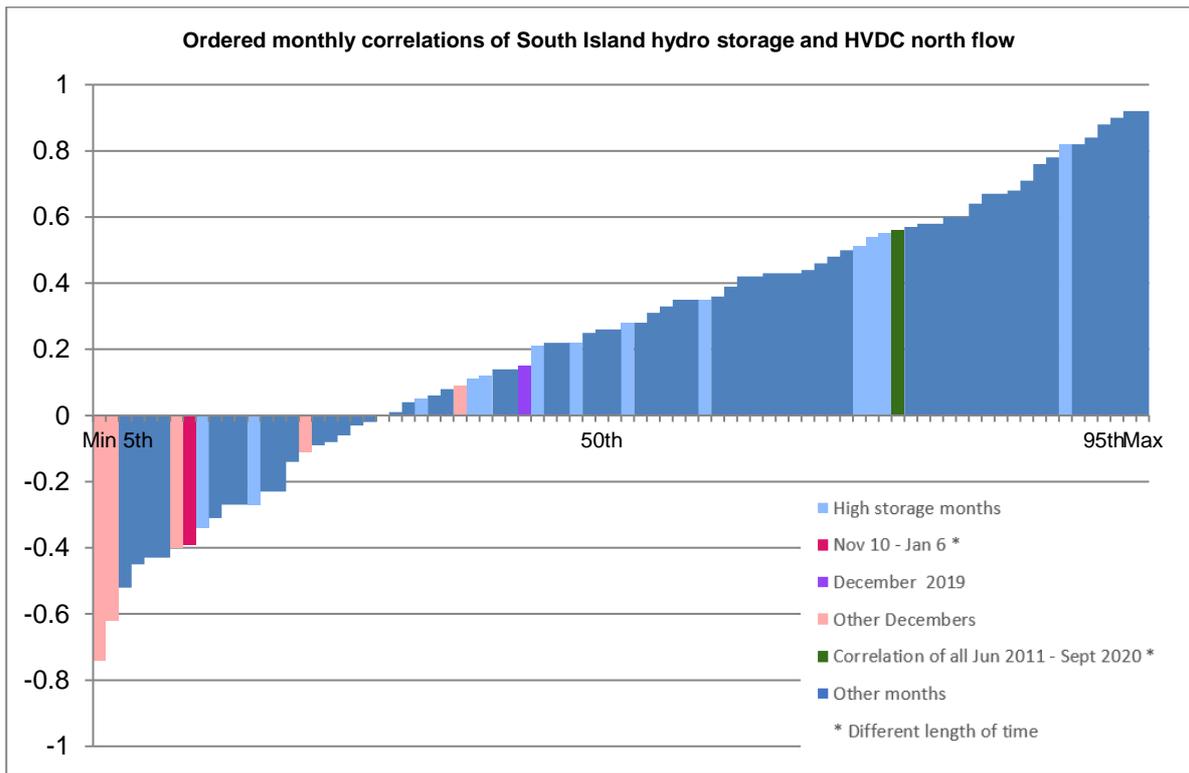
# Part H: Attachments

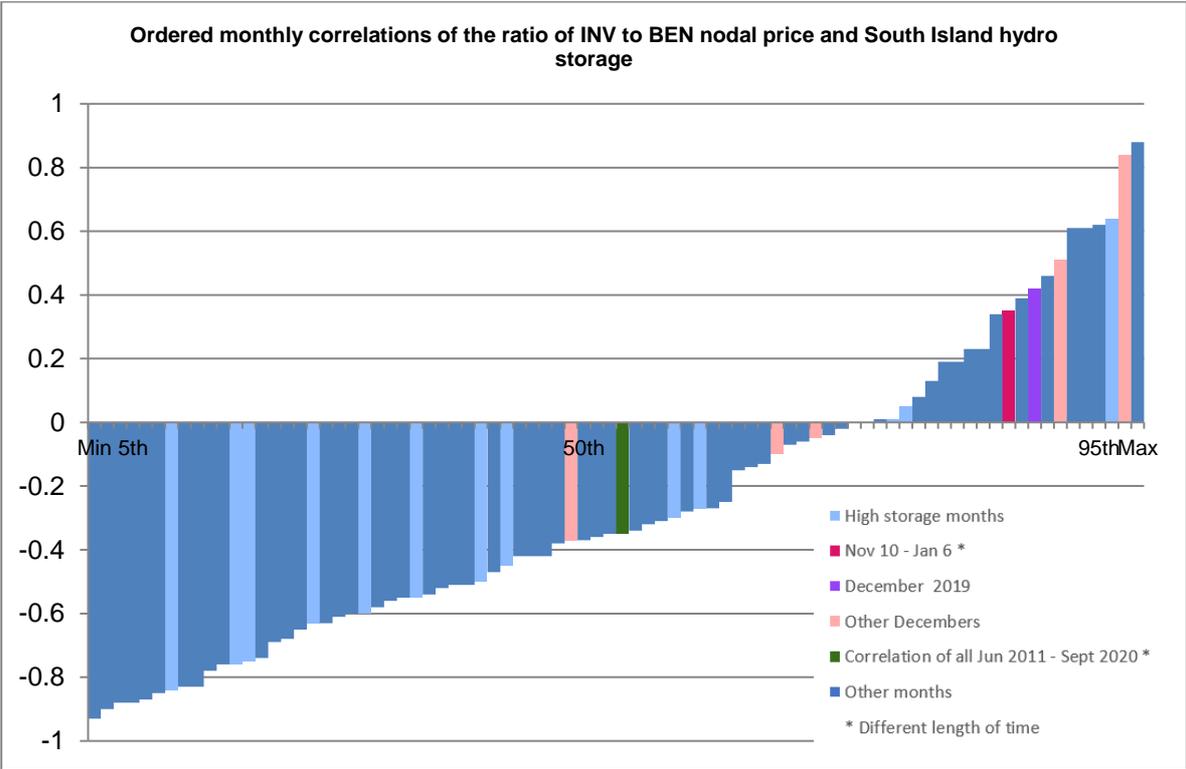
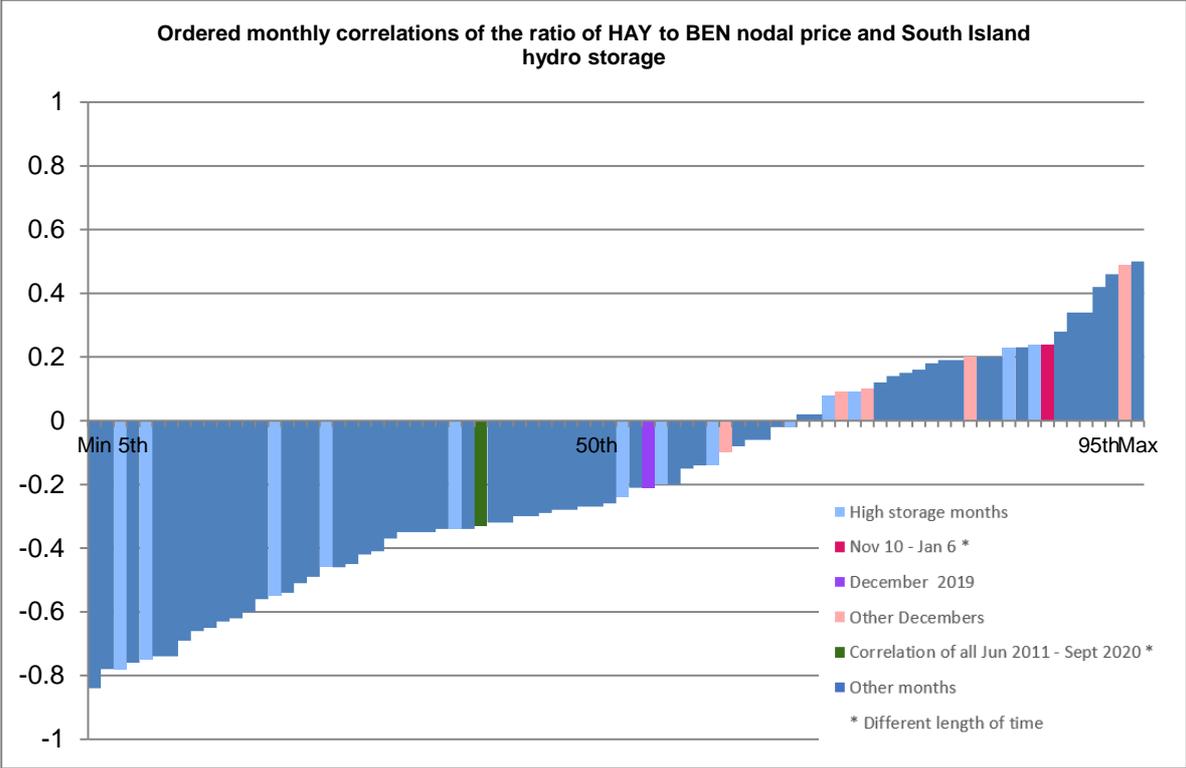
## Meridian analysis of Authority data showing ordered monthly correlations











**Sapere Report**