1912MERI2

Investigator's report on alleged breaches of clause 13.5A(1) by Meridian Energy Limited between 10 November 2019 and 16 January 2020

Prepared by: Peter Wakefield
Senior Investigator

Recommendation

1. The investigator recommends that the Board:

   (a) **discontinues** the investigation under regulation 23(3)(a) of the Electricity Industry (Enforcement) Regulations 2010 (Regulations)

Rationale

2. Haast Energy Trading Limited, Ecotricity Limited Partnership, Switch Utilities Limited (Vocus), Electric Kiwi Limited, Flick Energy Limited, Oji Fibre Solutions (NZ) Limited, and Pulse Energy Alliance LP (the Complainants) have alleged that Meridian Energy Limited (Meridian) has breached the high standards of trading conduct (HSOTC) provisions in clause 13.5A(1). The Complainants in the same letter as alleging the breach, also claimed a UTS.

3. The circumstances of the alleged breaches concern the prices in Meridian's offers when it was spilling water during flood conditions in the lower South Island.

4. The investigator considers that Meridian did not breach clause 13.5A(1) because the safe harbour provisions in clause 13.5B applied. Where a generator complies with the safe harbour provisions the generator is considered to comply with the HSOTC requirement in clause 13.5A(1).

5. The investigator considers the safe harbour provisions create a situation where "static" offer behaviour is deemed to meet a HSOTC. The "static" offer behaviour is what the investigator considers to be the underlying issue behind the alleged breaches where Meridian maintained its offers despite the value of water having zero value when spilling water under flood conditions.

6. The investigator notes the HSOTC provisions are fraught with interpretation issues and there have been no precedent cases by the Rulings Panel. Despite these issues the investigator has not found any reason to believe that the safe harbour provisions do not apply to the circumstances in this case.

Legal basis

7. This is an investigator's report under regulation 19 of the Regulations concerning the alleged breaches of clause 13.5A(1) of the Code by Meridian from 10 November 2019 to 16 January 2020.

8. On 12 August 2020, Meridian was notified of the investigation which at the same time was publicised on the Authority's website.

9. The investigation has been carried out independent to the Authority's investigation into the UTS claim.

10. Genesis Energy Limited, Mercury NZ Limited, Nova Energy Limited and Todd Generation Taranaki Limited joined the investigation as affected parties. The notifying participants were also parties to the investigation.

11. The investigator was not able to effect a settlement of the matter under investigation.

12. As required by regulation 19(2) of the Regulations, this report sets out sufficient detail to enable the Board to decide whether a formal complaint on the matter should be made to the Rulings Panel. To the extent that is reasonably practicable and appropriate in the circumstances, this report sets out the information specified in regulation 19(3) of the Regulations.

Circumstances of the event

13. On 12 December 2019, the Complainants made an undesirable trading situation claim and in the same letter alleged Meridian was in breach of clause 13.5A(1) with its offers during times of spill at its Manapouri and Waitaki power schemes.

14. The Complainants allege:

> "The spilling of water means the 'opportunity cost' or value of water is zero during the relevant trading periods and the short-run marginal cost (SRMC) of generating electricity at Manapouri is near zero.
>
> Meridian has offered in tranches of Manapouri hydro generation at well above its SRMC even though it is spilling water at the same time. It was able to do this by misusing its market power. For example:
>
> - From 13 November to 9 December generation of 100MW to 200MW+ at Manapouri was frequently made available only at prices above $450 [per MWh] during off-peak periods, and from 6 December water has also been priced up during peak periods.
>
> - In the same period, Meridian has exercised its market power through actively managing its Waitaki offers prior to gate closure to ensure overnight Benmore prices are maintained in a $50 to $70 [per MWh] range".

15. The Complainants allege the breaches occurred, on 10 November 2019 and were ongoing when Meridian was spilling water.

16. Data provided by Meridian shows that it was spilling water for 3,234 trading periods, being every trading period, from trading period 35 on 9 November 2019 to trading period 4 on 16 January 2020.

17. The Complainants at the time of alleging the breach claimed the breach has extracted excess revenue of $38m for Meridian from 10 November 2019.

18. Safe harbour clause 13.5B(1)(a) requires a generator to make offers in respect of all its generating capacity that it is able to operate. The investigator reviewed and accepts Meridian's explanations when it was not able to operate and therefore offer its Manapouri and Waitaki power schemes at full capacity. The investigator considers Meridian met the requirements of clause 13.5B(1)(a).

19. Safe harbour clause 13.5B(1)(b) requires a generator to submit or revise an offer as soon as it can after it decides to do so. The investigator notes that initial offers by trading period are submitted six days before the relevant trading day and can be revised up until the gate closure period for the relevant trading period. An example timeline using trading period 17 on 17 December 2019 for Benmore node BEN2202 records offer submissions as follows:

    - Initial submission 9:27am on 7 December 2019 – 6 days prior to the commencement of the trading period
    - Second submission (1st revision) 7:45pm on 12 December 2019 – 12 hours prior to the commencement of the trading period
    - Third submission (2nd revision) 8:59pm on 12 December 2019 – 11 hours prior to the commencement of the trading period
    - Trading period 17 commenced 8:00am on 13 December 2019

20. The investigator does not know when Meridian decided to make any offer revisions but notes this is not part of the breach allegation. The investigator did review when offer changes were made for several of the periods when there was an increase in final prices and did not see any offer changes of concern just prior to gate closure.

21. The investigator also reviewed offer changes made by Meridian within gate closure, being three revisions for Manapouri and four revisions for the Ohau power stations, and consider those changes were all made with valid reasons that are allowed for in the Code.

22. When a generator is pivotal there are three further conditions in clause 13.5B(1)(c)(i), (ii) or (iii) where meeting any one of those conditions deems that the generator falls within the safe harbour.

23. Of the 3,234 trading periods when Meridian was spilling water, it was pivotal in the South Island for 90% (2,905) of those trading periods.

24. Clause 13.5B(1)(c)(i) deems a generator to be in the safe harbour when the prices and quantities in its offers do not result in a material increase in the price in the region where it is pivotal. Clause 13.5B(1)(c)(i) requires this to be assessed by comparing prices in the immediately preceding trading period or another comparable trading period in which it was not pivotal.

25. This assessment requires interpretation of what is a material increase in the final price and what is a comparable trading period. It is usually on the early hours of the morning when Meridian is not pivotal so this provides limited trading periods for comparison in which to apply this test. This is further complicated by the usual fluctuation in final prices that occur at different times of the day.

26. Because Meridian was pivotal for 90% of the trading periods during the period of the alleged breach it was not practical for the investigator to assess every trading period.

27. The investigator looked at spikes in final prices that occurred during the period of the alleged breach including where Meridian was the marginal generator that caused the final price to spike. In some cases the price spikes appeared in the pre-dispatch schedules in advance of the trading period and in other cases the price spikes only appeared in final prices.

28. Where Meridian was the marginal generator and set a high final price, the investigator looked to see if the forward schedules indicated Meridian would be the marginal generator at the time it submitted its offers. In all cases, at the time of Meridian's final offer submission it was not the marginal generator. Meridian only appeared as the marginal generator either after its final offer submission, after gate closure, or in final prices.

29. Where the price spike only appeared in final prices the investigator speculates that changes in demand or some other reason could have caused the price spike.

30. Clause 13.5B(1)(c)(ii) deems a generator to be in the safe harbour when its offers when it is pivotal are generally consistent with its offers when it was not pivotal.

31. Again, because Meridian was pivotal for 90% of the trading periods during the period of the alleged breach it was not practical for the investigator to assess Meridians offers for consistency for every trading period. Furthermore, there was the issue that Meridian was usually only non-pivotal during the early hours of the morning, so it was difficult in finding a non-pivotal trading period for comparative purposes.

32. However, the investigator found that Meridian's offers were generally consistent irrespective of whether or not Meridian was pivotal. The investigator bases this finding on a high level review of offer patterns as well as a detailed review of trading periods at times of price spikes. Refer Appendix B

33. Safe harbour clause 13.5B(1)(c)(iii) provides a safe harbour where a generator does not benefit financially from an increase in the final price where the generator is pivotal. This clause is the net pivotal test. Net pivotal is not defined in the Code but has been used by the Authority for situations when a generator is pivotal and when that generation exceeds the generator's own retail and hedge commitments.

34. The Authority's Market Performance staff calculates the net pivotal position by trading period of the four main generators using confidential information such as hedge disclosure information. The investigator considers because the calculation of net pivotal uses confidential information the calculation result may also be confidential and may be not be able to be disclosed in a copy of the investigator's report to parties to the investigation.

35. Market Performance's calculation for the 2019 and 2020 calendar years shows that for all trading periods Meridian was never net pivotal. This means that Meridian would not benefit from an increase in final price. Furthermore, even if safe harbour clauses 13.5B(1)(c)(i) or (ii) did not apply then Meridian could always rely to be in the safe harbour under clause 13.5B(1)(c)(iii).

36. Meridian did not claim safe harbour clause 13.5B(1)(c)(iii) applied, rather it claimed all the other safe harbour provisions applied.

37. The investigator notes the net pivotal calculation is complicated and requires assumptions.

38. The investigator in assessing safe harbour clause 13.5B(1)(c)(iii) did consider situations of potential price separation where Meridian could benefit financially by minimising a potential loss arising from an increase in final prices. The investigator's preliminary analysis did not find any circumstances where Meridian's offer changes minimised a potential loss by avoiding price separation.

Relevant provision

39. Clause 13.5A provides:

> **13.5A Conduct in relation to generators' offers and ancillary service agents' reserve offers**
> (1) Each **generator** and **ancillary service agent** must ensure that its conduct in relation to **offers** and **reserve offers** is consistent with a high standard of trading conduct.
> (2) Subclause (1) applies when—
> (a) a **generator** submits, revises, or cancels an **offer**; or
> (b) an **ancillary service agent** submits or revises a **reserve offer**.

40. Clause 13.5B provides:

> **13.5B Safe harbours for clause 13.5A**
> (1) A **generator** complies with clause 13.5A if—
> (a) the **generator** makes **offers** in respect of all of its generating capacity that is able to operate in a **trading period**; and
> (b) when the **generator** decides to submit or revise an **offer**, it does so as soon as it can; and
> (c) in the case of a **generator** that is **pivotal**,—
> (i) prices and quantities in the **generator's offers** do not result in a material increase in the **final price** at which **electricity** is supplied in a **trading period** at any **node** at which the **generator** is **pivotal**, compared with the **final price** at the **node** in an immediately preceding **trading period** or other comparable trading period in which the **generator** is not **pivotal** at that **node**; or
> (ii) the **generator's offers** are generally consistent with **offers** it has made when it has not been **pivotal**; or
> (iii) the **generator** does not benefit financially from an increase in the **final price** at which **electricity** is supplied in a **trading period** at a **node** at which the **generator** is **pivotal**.
> (2) A **generator** does not breach clause 13.5A only because the **generator** does not comply with subclause (1).
>
> ….

41. Clause 1.1 provides:

> **pivotal** means—

(a) in relation to a **generator**, that the total **demand** in a **trading period** at any 1 or more **nodes** would not have been met if the **generator** had not submitted **offers** for all or any of its **generating plant**; and

(b) in relation to an **ancillary service agent**, that the total **demand** in a **trading period** for an **ancillary service** supplied by the **ancillary service agent** in an **island** would not have been met if the **ancillary service agent** had not submitted **reserve offers** for all or any of its capacity to provide **instantaneous reserve** in the **island**.

Investigator's assessment of impact

On market

42. Because the investigator has assessed Meridian to be within the safe harbour provisions, and therefore not breached the HSOTC the alleged breach did not have any market impact.

On security

43. The investigator considers there was no breach, however, regardless of whether or not there was a breach the investigator's assessment was there was no security impact in relation to the circumstances.

Meridian's explanations

44. Meridian strongly denies the alleged breach. Meridian "considers its conduct at all times during the relevant trading periods to have been appropriate and reasonable, within the safe harbour provisions of clause 13.5B(1) of the Code, and consistent with the HSOTC provisions in clause 13.5A of the Code".

45. Meridian comprehensive response is included in Appendix A - relevant investigation correspondence.

46. A summary of the key points made in Meridian's response is as follows;

a) Offering prices above SRMC is not a breach of the Code.

b) The Code does not provide guidance as to what amounts to a HSOTC or state or imply that the HSOTC requires offers to be made at or below SRMC.

c) Its offers fall within the safe harbour provisions and therefore it is deemed to comply with clause 13.5A(1).

d) In the course of trading it does not consider or calculate whether it is pivotal, [redacted] S9(2)(b)(ii) [redacted]

e) It made offers in respect of all its generating capacity – safe harbour 13.5B(1)(a)

f) When it decided to submit or revise an offer it did as soon as it could – safe harbour 13.5B(1)(b)

g) Its offers did not result in a material increase in price at which it was - pivotal safe harbour 13.5B(1)(c)(i).

h) Its offers were generally consistent with offers when it was not pivotal – safe harbour 13.5B(1)(c)(ii). Meridian provided separate analysis comparing its offers between trading periods

i) The current HSOTC rule is not based on any established body of decisions or precedent which has considered what type of trading conduct is or isn't of a "high" standard, and the Authority has not provided any guidelines or taken any substantive enforcement action.

j) That MDAG review of the existing HSOTC provisions considered the provisions as unsatisfactory.

k) Meridian described the hydrological conditions as extraordinary and exceptional. as well providing a description of its operation of its hydro schemes during this period, as well as market conditions and transmission constraints applying at the time.

47. On 3 March 2021, the investigator sought further information from Meridian following Meridian's Chief Executive Officer's response to a question at the Transport and Infrastructure Select Committee hearing on 25 February 2020. That response had suggested Meridian's traders had not understood and /or followed instructions during the period subject to the HSOTC investigation.

48. On 10 March 2021, Meridian advised that the response had since been clarified with the Select Committee and it did not change its position in denying the alleged breaches of clause 13.5A. Following further correspondence and the investigator's review of Meridian's Perform reports the investigator considered the information did not affect the assessment of the alleged breaches of clause 13.5A(1).

Similar situations previously dealt with

49. There has been one previous alleged breach concerning clause 13.5A(1) by Meridian, which was considered by the Board on 4 May 2017. The alleged breach concerned Meridian's trading conduct for trading periods 36 and 38 on 2 June 2016.

50. For that alleged breach *The Authority decided Meridian's trading conduct on 2 June 2016 was not of a high standard and, therefore, breached clause 13.5A(1). The Authority also concluded that Meridian's trading conduct for trading periods 36 and 38 on 2 June was outside of the safe harbour provisions under clause 13.5B(1).*

Meridian was outside the safe harbour provisions under clause 13.5B(1)(c) for trading periods 36 and 38 of 2 June 2016 because:

- *In terms of clause 13.5B(1)(c)(i), there were offers Meridian could have made that would have resulted in the prices being lower*
- *clause 13.5B(1)(c)(ii) did not apply*
- *Meridian benefited financially from an increase in the final prices - clause 13.5B(1)(c)(iii).*

Meridian used its pivotal position to cover its unhedged North Island risk on 2 June 2016, which essentially resulted in the cost of the risk being met by other parties. The high standard of trading conduct provisions were introduced to improve the efficiency of prices in pivotal supplier situations and the Authority would have expected Meridian to have covered its risk using other available risk management products or if it chose not to do that then bear the cost of the risk if it eventuates.

However, the Authority also noted that:

- *2 June 2016 represented the first serious test of the high standard of trading conduct provisions*
- *the disparate opinions on what is a high standard of trading conduct and on the application of the safe harbours*
- *the Code provisions may require further refinement and clarification to assist market participants.*

In all the circumstances of the matter, the Authority decided not to lay a formal complaint with the Rulings Panel but warned that it expects Meridian to meet a high standard of trading conduct in the future.

Settlement

51. The parties to the investigation have not reached a settlement because Meridian denies that it has breached the Code.

Investigator's assessment of the alleged breach

52. The investigator considers that Meridian did not breach clause 13.5A(1) because the safe harbour provisions in clause 13.5B applied. Where a generator complies with the safe harbour provisions the generator is considered to comply with the HSOTC requirement in clause 13.5A(1).

Other relevant information

53. The investigator acknowledges that Meridian fully co-operated in supplying information.

Correspondence

54. A copy of relevant correspondence held by the investigator relating to the alleged breaches is attached in Appendix A.

Options for the Board

55. This is an investigation where a settlement was not able to be achieved by the parties to the investigation.

56. The Board has the following options with respect to the alleged breaches covered in this report:

    (a) discontinue the investigation under regulation 23(3)(a) of the Regulations; or

    (b) recommend that the Board lay a formal complaint with the Rulings Panel under regulation 23(3)(b) of the Regulations.

57. Regulation 31 provides that if the Authority decides to discontinue the investigation under the above option (a), an industry participant may lay a formal complaint with the Rulings Panel within 10 working days after receiving the Authority's decision to discontinue the investigation against another industry participant allegedly in breach if –

    (a) the industry participant was the notifying participant; and

    (b) the industry participant has suffered a loss as a result of the alleged breach.

Appendix A Relevant correspondence

Date	From	To	Information
12 Dec 19	Complainants	CE Electricity Authority	Letter claiming UTS and alleged breaches
12 Dec 19	Complainants	Alleged breach notification form	Alleging breaches of clause 13.5A by Contact Energy and Meridian Energy
18 Dec 19	Compliance	Meridian	Fact finding letter
19 Dec 19	Compliance	Complainants	Advising process and timing
13 Jan 20	Compliance	Meridian	Agreeing a 14 Feb 20 response date
14 Feb 20	Meridian	Compliance	Response to alleged breach including a redacted response and supporting Sapere report
12 Aug 20	Investigator	Meridian	Notice of investigation
17 Aug 20	Genesis Energy	Investigator	Joining Investigation
24 Aug 20	Mercury Energy	Investigator	Joining investigation
25 Aug 20	Nova Energy	Investigator	Joining investigation
25 Aug 20	Todd Generation Taranaki	Investigator	Joining investigation
23 Sep 20	Meridian	Investigator	Response to notice of investigation including redacted response
1 Dec 20	Investigator	Parties to investigation	Outlining settlement process and requesting settlement requirements
2 Dec 20	Haast Energy	Investigator	Requesting copies of documents referenced in Meridian's response
2 Dec 20	Meridian	Investigator	Requesting that documents provided to parties are kept confidential
3 Dec 20	Investigator	Parties to investigation	Providing copies of documents that were referred to in Meridian's response

10 Dec 20	Allen Consulting	Investigator	Providing a joint response to settlement requirements from the Complainants
11 Dec 20	Todd Generation and Nova Energy	Investigator	Settlement requirements
11 Dec 20	Investigator	Parties to investigation	Circulating settlement requirements – note at this stage the settlement responses to the Meridian and Contact HSOTC investigations had become conflated
14 Dec 20	Meridian	Investigator	Advising Meridian had no settlement requirement and that it was not prepared to settle
14 Dec 20	Investigator	Parties to investigation	Circulating Meridian's response to settlement requirements
17 Dec 20	Allen Consulting	Investigator	Providing a joint response to settlement submissions from the Complainants
18 Dec 20	Investigator	Parties to investigation	Advising that the investigator would conclude the settlement process, complete the investigations
3 Mar 20	Investigator	Meridian	Requesting further information after Meridian CEO's comments at Transport and Infrastructure Select Committee hearing
10 Mar 20	Meridian	Investigator	Response to request of 3 Mar 20
12 Mar 20	Investigator	Meridian	Providing clarification and requesting instructions and trading period affected
19 Mar 20	Meridian	Investigator	Response to 12 Mar 20 request

12 December 2019

James Stevenson-Wallace
Chief Executive
Electricity Authority

By email: compliance@ea.govt.nz, uts@ea.govt.nz, james.stevenson-wallace@ea.govt.nz

CC: MBIE, Gareth.wilson@mbie.govt.nz

Reporting of Contact and Meridian's breaches of the High Standard of Trading Conduct requirements and Undesirable Trading Situation

Dear James,

Haast Energy Trading considers that both Contact Energy and Meridian Energy's conduct during the relevant trading periods:

- Breached the High Standard of Trading Conduct (HSOTC) provisions (clause 13.5A) of the Electricity Industry Participation Code (the Code);
- Fell outside the clause 13.5B safe harbour provisions in the Code; and
- The nature and scale of the HSOTC breach – specifically the manipulative trading activity and quantum of the wealth transfers – also qualifies as an undesirable trading situation (UTS) under Part 5 of the Code.

Our simulations show Meridian's generation business has extracted excess revenue of $38m in the period since 10 November 2019 and Contact's by $23m. We consider that the scale of monopoly pricing goes well beyond a breach of the HSOTC provisions and amounts to a UTS.

Please find attached the Notice of Breach forms for a HSOTC and UTS. We are joined in the HSOTC and UTS breach complaints by ecotricity, Vocus, Electric Kiwi, Flick Electric, Oji Fibre, and Pulse Energy Alliance.

HSOTC versus UTS

Haast considers that Contact and Meridian have breached both the HSOTC and UTS provisions of the Code. We note the definition of a UTS specifies that:

> "undesirable trading situation means any situation— (a) that threatens, or may threaten, confidence in, or the integrity of, the wholesale market; and (b) that, in the reasonable opinion of the Authority, cannot satisfactorily be resolved by any other mechanism available under this Code (but for the purposes of this paragraph a proceeding for a breach of clause 13.5A is not to be regarded as another mechanism for satisfactory resolution of a situation)."

This means that a breach of the HSOTC Code provisions can also be a breach of the UTS provisions.

The date and time the alleged breach occurred

The relevant trading periods for the alleged breach include hundreds of trading periods from 11 November 2019 onwards and the situation remains on-going. From approximately November 10 Meridian has been spilling water from Lake Manapouri into the Waiau river. Meanwhile, Contact have had sufficient flow at Clyde (generally >850 cumecs[1]) to run their Clyde and Roxburgh stations at maximum capacity 24/7 but have foregone this opportunity to generate and spilled water to prop up energy prices. Both Meridian and Contact have been pricing large tranches of volume at greater than $50 despite spilling hundreds of GWh of water[2], and as a result these stations have not been dispatched as much as they would if their offers reflected the SRMC of the water in these catchments.[3]

Lakes Manapouri and Te Anau both encroached into their high operating ranges around November 10, leading Meridian Energy to commence spill from the scheme in order to satisfy resource consents.

Flows in the Lower Waiau River are controlled by releases of water from the Lake Manapouri Control structure. Meridian must generally maintain minimum flows in the range of 12 to 16 cumecs to satisfy Environment Southland resource consent 96022.[4] Release flows must also increase to equal the flow in the Mararoa River when turbidity increases beyond the consented threshold in that river. With rare exceptions for environmental releases, flows in the lower Waiau river in excess of the Mararoa river flow indicate that Meridian is spilling water from Lake Manapouri. Data from Environment Southland indicates that this has been the case continuously since 10 November.[5]

Lake Manapouri water level

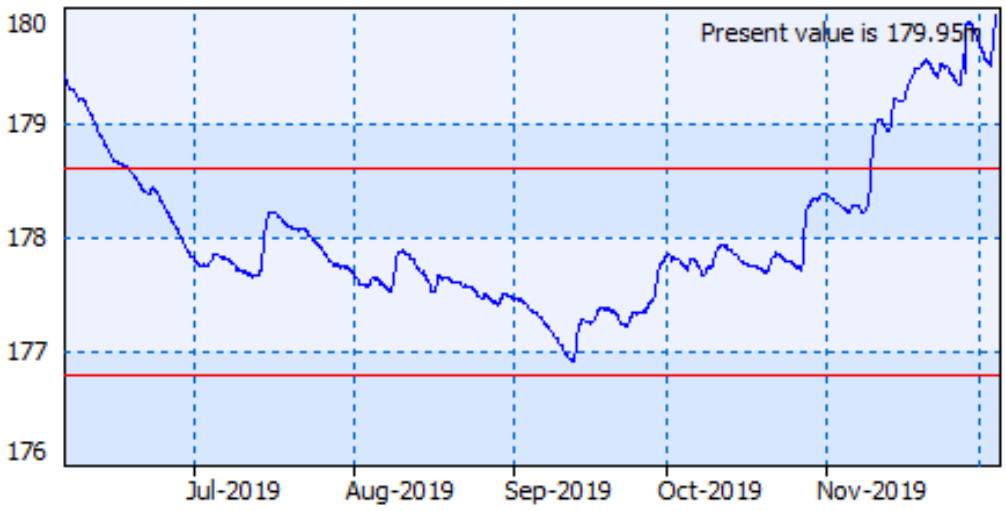

Figure 1: Lake Manapouri water levels. The red lines demarcate the normal operating range of the lake, and it can be seen that the lake entered its high operating range around 10 November

[1] Cubic metres of water per second

[2] For example the spill in cumecs at Manapouri since 3 December has exceeded the maximum consumption of the power station itself (circa 520 cumecs).

[3] The attached spreadsheet details trading periods where Clyde (CYD) and Manapouri (MAN) separately had bands priced to >$5 while they were spilling. (Periods where Manapouri or Clyde was spilling AND maintaining offers above 5 dollars.xls) We chose $5 to reflect: (i) the water value was virtually $0 for the entire period (11th Nov to 9 Dec), but there may be some O&M costs etc which could mean SRMC is above zero.

[4] https://www.es.govt.nz/repository/libraries/id:26gi9ayo517q9stt81sd/hierarchy/about-us/plans-and-strategies/regional-plans/proposed-southland-water-and-land-plan/documents/background-documents/evidence/ENV-2018-CHC-000038%20-%20Meridian%20Energy%20Ltd%20

[5] http://envdata.es.govt.nz/

Lake Te Anau water level

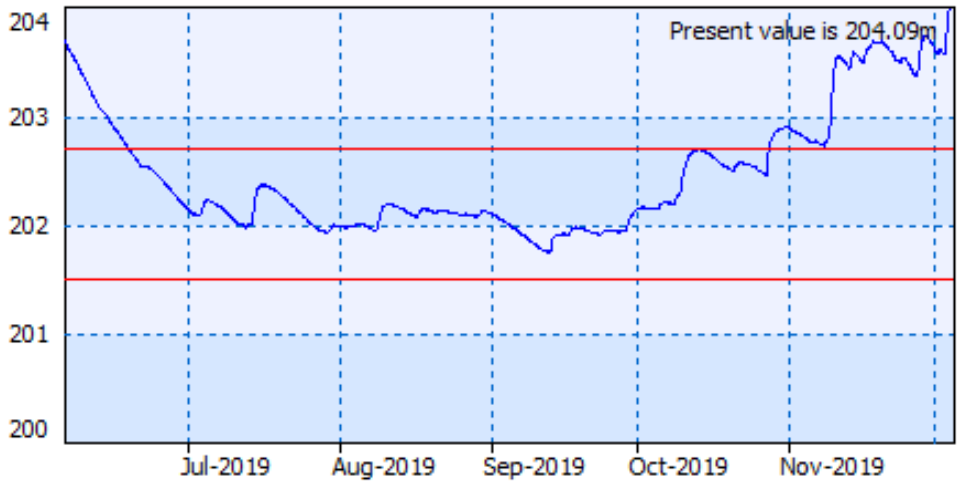

Figure 2: Lake Te Anau water levels. The red lines demarcate the normal operating range of the lake, and it can be seen that the lake entered its high operating range in late October, then rose further around 10 November.

Mararoa water flow

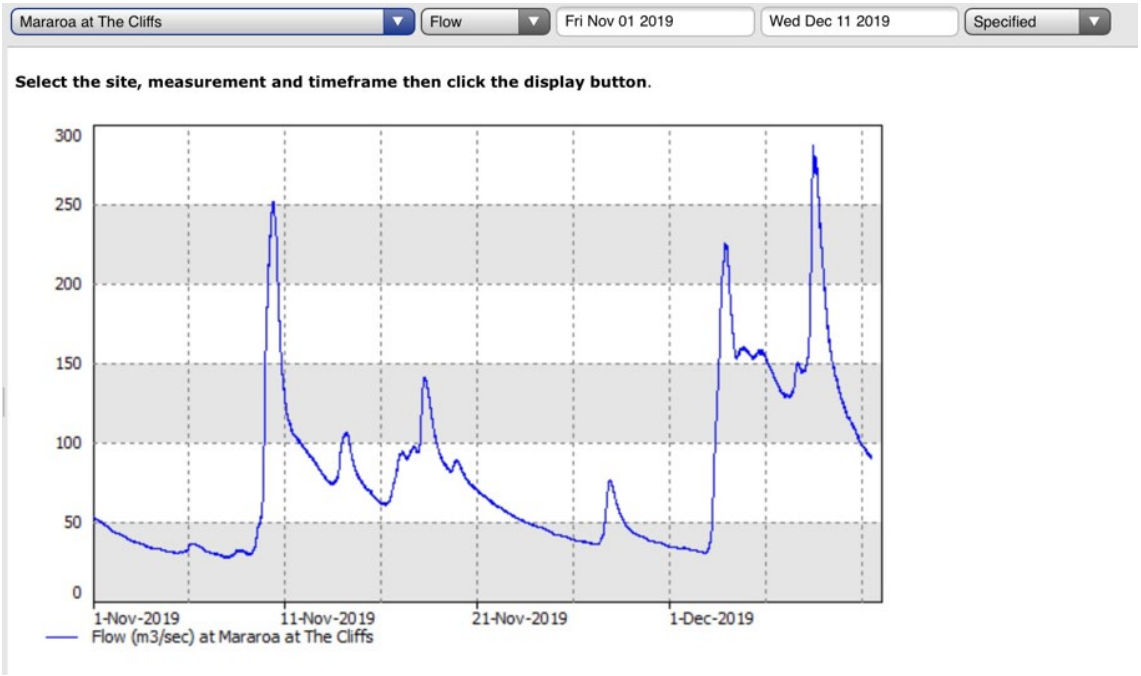

Figure 3: Mararoa river flows (in cumecs), upstream of the Manapouri Control Structure.

Waiau River water flow

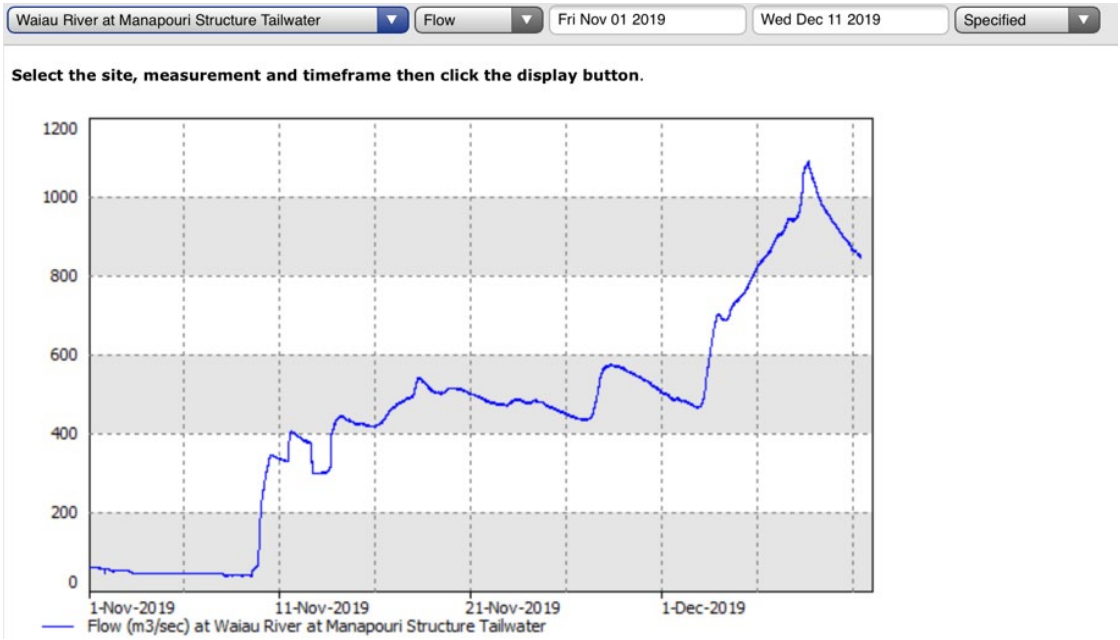

Figure 4: Waiau river flows (in cumecs) immediately downstream of the Manapouri Control Structure. The flows well in excess of Mararoa river flows since 10 November indicates the balance has come from Lake Manapouri

Clutha River water flow

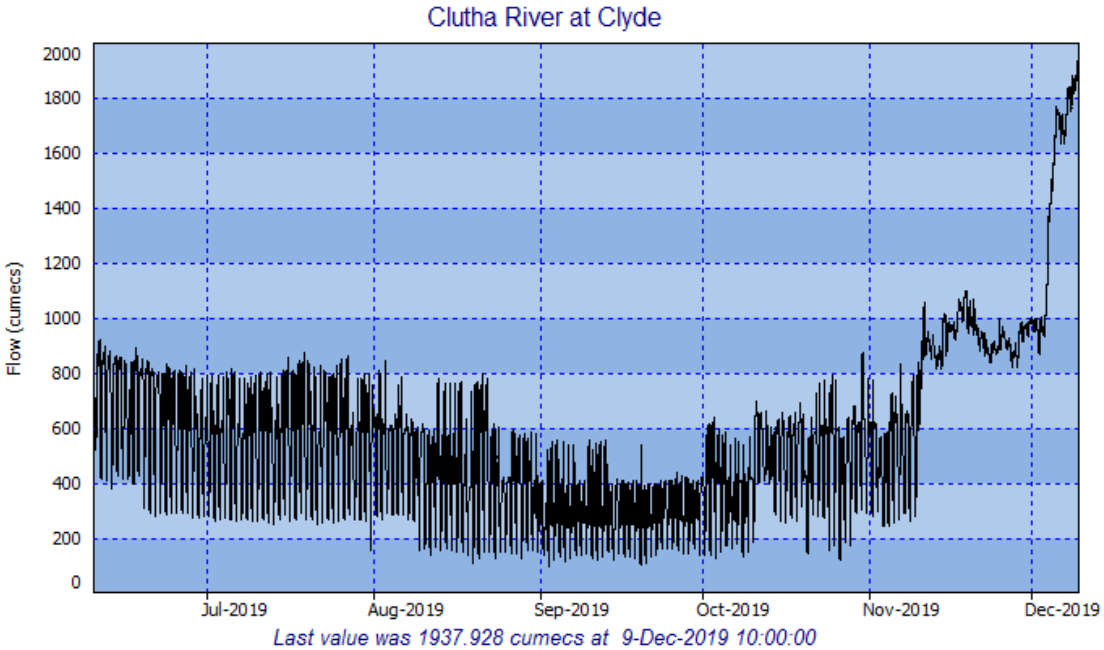

Figure 5: Clutha River flows at Clyde. The flow since 10 November, generally above 850 cumecs, would have been sufficient to run the Clutha scheme near full capacity.

Circumstances of Meridian's breach

Meridian has been spilling water at the Manapouri Power Scheme (Manapouri) during the relevant trading periods. The spill is of the same order or magnitude as the maximum water consumption of the power station (circa 520 cumecs).

The spilling of water means the 'opportunity cost' or value of water is zero during the relevant trading periods and the short-run marginal cost (SRMC) of generating electricity at Manapouri is near zero.[6]

Meridian has offered in tranches of Manapouri hydro generation at well above its SRMC even though it is spilling water at the same time. It was able to do this by misusing its market power. For example:

- From 13 November to 9 December generation of 100MW to 200MW+ at Manapouri was frequently made available only at prices above $450 during off-peak periods, and from 6 December water has also been priced up during peak periods.[7]

- In the same period, Meridian has exercised its market power through actively managing its Waitaki offers[8] prior to gate closure to ensure overnight Benmore prices are maintained in a $50 to $70 range.[9]

Circumstances of Contact's breach

The Clyde Power Station has an energy conversion rate of approximately 0.52 MW/cumec and a maximum generation capacity of 464MW (previously 432MW), meaning flows of roughly 890 cumecs are required for maximum generation. The Roxburgh Power Station has an energy conversion rate of approximately 0.40 MW/cumec and a maximum generation capacity of 320MW, meaning flows of roughly 800 cumecs are required for peak generation.[10] Essentially the same flows pass through each station, barring the addition of the Manuherekia river and some minor tributaries downstream of Clyde[11]

The flow in the Clutha River downstream of the Clyde Dam has averaged over 900 cumecs since 11 November, yet generation from Clutha from 11 November to 9 December averaged approximately 600MW against the scheme's total capacity of 784MW, and often dropped nearer to 300MW overnight. Contact has repeatedly offered zero-value water into the market at prices greater than $50 to prop up spot prices, intentionally spilling more water than necessary. [12]

[6] The Electricity Authority provides the following definition of the "opportunity cost" of water:
"The opportunity cost of using water to generate electricity today is the value of using it at some time in the future to generate electricity, or its value in some other use, such as, irrigation, recreation or conservation of the environment". Reference: Dr Brent Layton, Chair, Electricity Authority, The Economics of Electricity, 4 June 2013, paragraph 17.
[7] Refer to Appendix 1.
[8] Refer to Appendix 2
[9] Refer to Appendix 9.
[10] Refer to Tables 6 and 7 of this document: http://www.epoc.org.nz/papers/EMBEROnlineCompanion.pdf
[11] Refer to: https://www.orc.govt.nz/managing-our-environment/water/water-monitoring-and-alerts
[12] Refer to Appendix 3.

Impact of the manipulative trading activity

To assess the impact of Contact and Meridian's manipulative trading activity Haast used the vSPD-online tool[13] to produce a counter-factual scenario with all of the available Waiau and Clutha plant offered into the market at $5.[14] A level of $5 was chosen to reflect a near zero water value but some small variable operations and maintenance costs.

The impact of Contact and Meridian's manipulative trading activity has included:

- higher than otherwise wholesale electricity prices (resulting in adverse allocative efficiency impacts and wealth transfers from consumers to generators, including Contact and Meridian). Our simulations show Meridian's generation business has extracted excess revenue of $38m in the period since 10 November and Contact's by $23m.[15] The following graph (Figure 6) shows the difference of approximately $30 between actual prices and the prices that would have arisen if Contact and Meridian hadn't artificially raised their offer prices.[16]

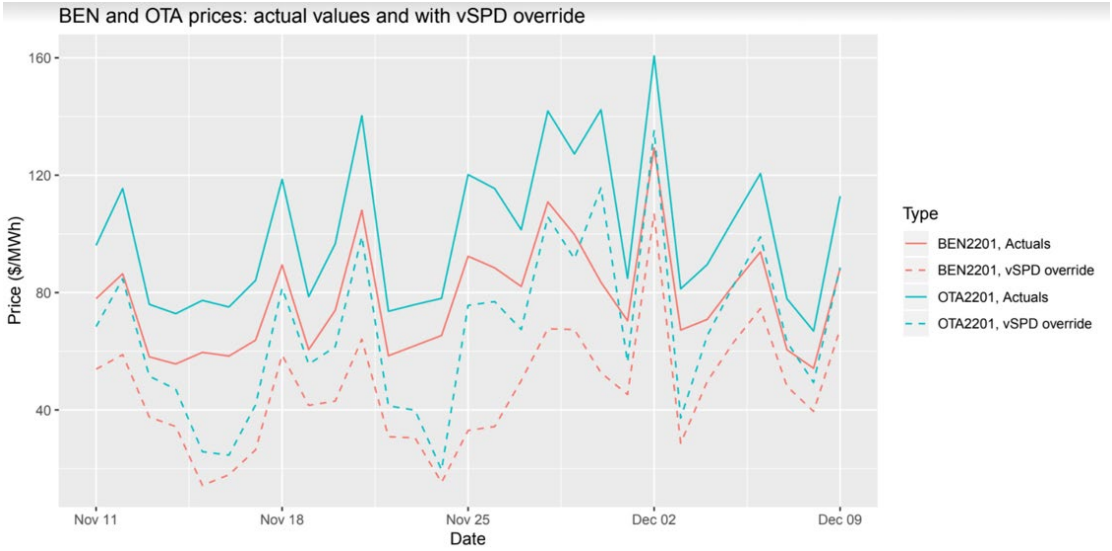

Figure 6: There is a clear and consistent reduction in market prices in the simulated scenario for BEN and OTA (dashed lines)

- additional and unnecessary water spill (productive inefficiency). Our simulation indicates that if the full generation capability of the Waiau and Clutha plant had been offered into the market at $5, then an additional 109 GWH of generation would have been dispatched from these schemes that has been instead been spilled;

- inefficient and higher use of North Island hydro, wasting storable water in the North Island during off-peak hours (productive inefficiency). Our simulations show that 15GWh of North Island water was used needlessly and could have been supplanted by spilled South Island water;[17]

[13] https://www.emi.ea.govt.nz/vSPD-online
[14] Refer to Appendix 6 for a full list of assumptions
[15] This is based on assumption that the SRMC for Clyde, Manapouri and Roxburgh was $5. We chose $5 to reflect: (i) the water value was virtually $0 for the entire period (11th Nov to 9 Dec), but there may be some O&M costs etc which could mean SRMC is above zero.
[16] Refer Appendices 6, 7, and 8.
[17] Refer to Appendix 4.

- inefficient and higher fuel cost (above zero) thermal (gas and coal) power generation in the North Island (including Huntly) during off-peak hours (productive inefficiency). Our simulations show that 11GWh of Huntly thermal generation could have been supplanted by spilled South Island water;[18]

- higher carbon dioxide (CO2) emissions for New Zealand. Our analysis indicates 6000 tonnes of CO2 emissions could have been avoided. The additional coal-fired generation at Huntly also generates other forms of air pollution including sulfur dioxide, nitrogen oxides, particulate matter (PM), and heavy metals (see Figure 7 below). For the excess CO2 emissions analysis, the following emission rates were assumed (tonnes of CO2 per MWh of electricity generated):[19]
    - HLY5: 0.394.
    - HLY1-4: 0.974 if burning coal, 0.581 if burning gas.
    - SFD peakers: 0.506

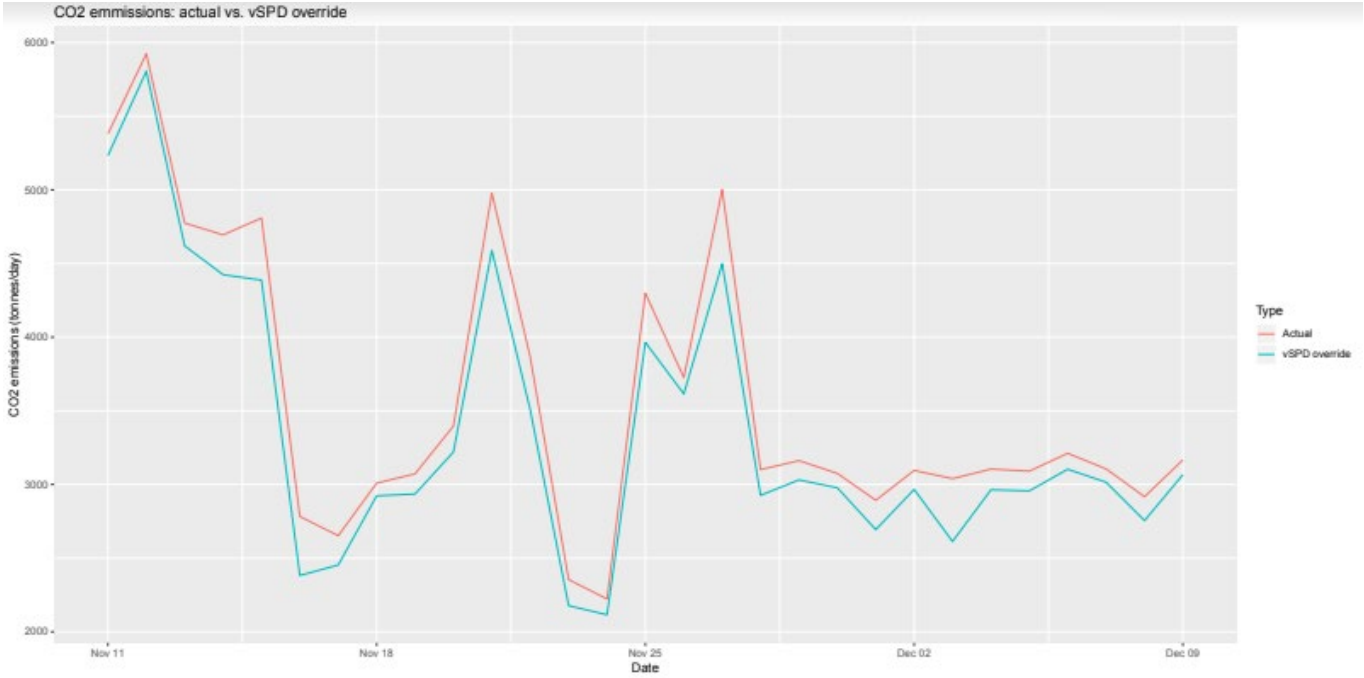

Figure 7: There is a clear and consistent reduction in carbon emissions from electricity generation in the simulated scenario (green line)

The value of water if the storage lake is full is zero

The Electricity Authority has been clear that: "Water has no value in an economic sense when it is so abundant that there are no constraints on the use of water now or in the future in any activity".[20]

[18] Refer to Appendix 5.

[19] NB the source of the CO2 emission rates is as follows: for HLY5 and HLY1-4 when burning coal: Table 12 of this document: https://www.waikatoregion.govt.nz/assets/PageFiles/21888/TR201218.pdf. The figure for HLY1-4 when burning gas was obtained from Tables 10 and 12 of the same document, specifically by multiplying the coal emission rate from Table 12 by the ratio of gas to coal combustion emissions from Table 10 (53.3/89.4). The figure for the SFD peaker was obtained by multiplying its heat rate (9.5GJ/MWh, from http://www.epoc.org.nz/papers/SecurityofSupply-Fulton2018.pdf, Appendix 1) by an estimated CO2 emission rate for gas plant (53.3, from Table 12 of this document: https://www.waikatoregion.govt.nz/assets/PageFiles/21888/TR201218.pdf).

[20] Dr Brent Layton, Chair, Electricity Authority, The Economics of Electricity, 4 June 2013, paragraph 18.

This is reinforced by the Authority's observation that "the opportunity cost of hydro storage … is the value of water preserved for later use"[21] which, by definition, is zero if the water cannot be stored i.e. when water is being spilled.

Consistent with the Authority's view, Poletti has also observed: "If the storage lake is full, and more water is flowing in, there is no value in storing any water for the future, i.e. the opportunity cost of using water is zero".[22]

Contact and Meridian's breaches of the HSOTC Code requirements is unambiguous

Haast considers this to be one of the most unambiguous and clearest breaches of the HSOTC Code requirements.

The fact the 'opportunity cost' or water value is zero when water is being spilt makes it straightforward to compare the generator's offer prices against SRMC to determine whether the generator has mis-used market power to offer generation above workably competitive market levels and raise spot prices.

As we have demonstrated above, it is a relatively straight-forward matter to use vSPD modelling to 'correct' the offer prices to workably competitive levels to determine the level of excess wholesale electricity prices (and excess returns for the generator), as well as other indirect adverse impacts such as increased use of higher cost generation plant (such as Huntly) and higher New Zealand CO2 emissions. The modelling Haast has undertaken reflects the following:

- There was water spilled at Clyde, Manapouri and Roxburgh that could have been used to generate electricity e.g. Contact had sufficient flow at Clyde to run Clyde and Roxburgh near maximum capacity 24/7 since November 11.

- We then assumed that the SRMC for CYD, ROX and MAN water was $5 for the entire period (11th November to 9 December). We chose $5 to reflect: (i) the water value was virtually $0 for the entire period (11th Nov to 9 Dec), but there may be some O&M costs etc which could mean SRMC is above zero.

- We ran an experiment with vSPD where we offered in these stations' full capacity at $5.

- The vSPD results show that prices would have been approximately $30 lower if the CYD/ROX/MAN water was priced at $5.

[21] Dr Brent Layton, Chair, Electricity Authority, The Economics of Electricity, 4 June 2013, paragraph 26.
[22] Stephen Poletti, University of Auckland, Market Power in the NZ wholesale market 2010-2016.

Application of the Authority's statutory objective to determine whether there has been a breach of the HSOTC requirements

Bell Gully has provided the Market Design Advisory Group (MDAG) advice that "In interpreting the trading conduct provisions, we would expect a court to first consider: ... the purpose of the Code as set out in s 32 of the Electricity Industry Act 2010 (the Act)".[23]

The Authority interprets its statutory objective in section 15 of the Electricity Industry Act 2010 (Act) "To promote competition in, reliable supply by, and the efficient operation of, the electricity industry for the long-term benefit of consumers" as referring to "workable or effective competition".[24] The Authority also elaborated that it used a short-term, allocative efficiency, benchmark of short-run marginal cost (SRMC) to determine workably competitive market outcomes:[25]

> "… workable competition delivers benefits to consumers by placing pressure on firms to set their prices close to their marginal cost of supply. Prices above this marginal cost of supply cause consumers to forgo goods and services that they value more highly than it costs to supply them. That is an allocatively inefficient outcome, as consumer surplus is forgone." [emphasis added]

Consistent with this, the Authority "… Board also noted that ideally prices in a pivotal supplier situation would … settle at a level just below the short run marginal cost of the next best alternative".[26]

In the Authority's market performance review of the High Prices on 2 June 2016, the Authority took a longer-term, more dynamic, perspective to the meaning of workable competition than it did in its interpretation of its statutory objective:[27]

> "The Authority's underlying benchmark for competition is workable competition. Workable competition is a dynamic view of markets that encompasses prices deviating from long term equilibrium levels as long as barriers to entry are low so that, in the long term, prices move towards competitive levels."

While the two positions are different they are consistent. The positions presented in the Interpretation of the Statutory Objective and the market performance review, individually, only tell part of the story of the outcomes in a workably competitive market: what can be expected is that in the short-term (half-hour by half-hour) pricing is based on SRMC, while in equilibrium (a theoretical construct that is never actually achieved) or on average, over-time, SRMC/prices will tends towards long-run marginal cost (LRMC). The Authority's 2 June 2016 market performance review also explicitly referred to SRMC as being the relevant benchmark[28] and made no reference to LRMC as being relevant to the review.[29]

What this means is that when it is being tested whether prices are consistent with workably competitive markets in any given half-hour, the relevant test is whether generation offers and wholesale electricity prices reflect or exceed SRMC, but when prices are being looked at over an extended period, e.g. over year or longer, the relevant test is whether prices reflect or exceed LRMC. This interpretation is an orthodox economic description of how competitive markets work.

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[23] Bell Gully, INTERPRETATION OF THE TRADING CONDUCT PROVISIONS, Summary of interpretative aids, 27 August 2018.
[24] Electricity Authority, Interpretation of the Authority's statutory objective, section 2.2.1(a).
[25] Electricity Authority, Interpretation of the Authority's statutory objective, section A.22.
[26] Letter from Carl Hansen (CEO, Electricity Authority) to John Hancock (WAG Chair), "Feedback from the Board on WAG discussion paper", 12 April 2013.
[27] Electricity Authority, High Prices on 2 June 2016, Market performance review, 18 December 2017, paragraph 9.4.
[28] Electricity Authority, High Prices on 2 June 2016, Market performance review, 18 December 2017, paragraph 8.24.
[29] The only reference to LRMC was the statement that: "Contact advised that its standard practice is to offer Whirinaki close to its short run marginal cost (SRMC) when covering its own book, and near Whirinaki's long run marginal cost (LRMC) when selling above its contracted position" at paragraph 4.16.

The High Court has also discussed the meaning of workable competition including:

> "A workably competitive market is one that provides outcomes that are reasonably close to those found in strongly competitive markets. Such outcomes are summarised in economic terminology by the term "economic efficiency" with its familiar components: technical efficiency, allocative efficiency and dynamic efficiency. Closely associated with the idea of efficiency is the condition that prices reflect efficient costs (including the cost of capital, and thus a reasonable level of profit)."[30]

> "In a workably competitive market no firm has significant market power and consequently prices are not too much or for too long significantly above costs."[31]

> "Workable competition implies that no player has excessive market power."[32]

> "… workably competitive markets have a tendency towards generating certain outcomes. These outcomes include the earning by firms of normal rates of return, and the existence of prices that reflect such normal rates of return, after covering the firms' efficient costs."[33]

> " … the prices that tend to be generated in workably competitive markets will provide incentives for efficient investment and for innovation."[34]

> "In short, the tendencies in workably competitive markets will be towards the outcomes produced in strongly competitive markets. … The more those tendencies are seen in a market, the more the market can be regarded as workably competitive. And of course, the more competitive the market, the more those tendencies will be seen." [35]

The interpretation Haast takes from the above guidance on workably competitive market outcomes is that:

- Workable competition tends towards strong competition;
- There is no excessive market power or mis-use of market power in a workably competitive market;
- The outcomes of workable competition include productive (or technical), allocative (SRMC pricing) efficiency and dynamic efficiency;
- Prices should reflect the firms' efficient costs and should not result in sustained excessive (above normal) returns. Above normal returns are a temporary reward for superior efficiency;
- In the short-run (half-hour by half-hour) prices should reflect SRMC; and
- In the long-run prices should tend towards or average LRMC.

Contact and Meridian's conduct is inconsistent with the Authority's statutory objective

Haast considers that when Contact and Meridian's trading conduct is compared against workably competitive market outcomes and the statutory objective, the conclusions the Authority reached in relation to Meridian's 2 June 2016 are, at least, equally, if not more applicable, to the conduct that has given rise to this HSOTC breach allegation.

[30] WELLINGTON INTERNATIONAL AIRPORT LTD & ORS v COMMERCE COMMISSION [2013] NZHC [11 December 2013], paragraph [14].
[31] WELLINGTON INTERNATIONAL AIRPORT LTD & ORS v COMMERCE COMMISSION [2013] NZHC [11 December 2013], paragraph [15].
[32] WELLINGTON INTERNATIONAL AIRPORT LTD & ORS v COMMERCE COMMISSION [2013] NZHC [11 December 2013], paragraph [17].
[33] WELLINGTON INTERNATIONAL AIRPORT LTD & ORS v COMMERCE COMMISSION [2013] NZHC [11 December 2013], paragraph [18].
[34] WELLINGTON INTERNATIONAL AIRPORT LTD & ORS v COMMERCE COMMISSION [2013] NZHC [11 December 2013], paragraph [20].
[35] WELLINGTON INTERNATIONAL AIRPORT LTD & ORS v COMMERCE COMMISSION [2013] NZHC [11 December 2013], paragraphs [22] – [23].

The high South Island prices, just like for 2 June 2016, was the result of trading behaviour that was inconsistent with the Authority's statutory objective to promote competition in, reliable supply by, and the efficient operation of, the electricity industry for the long-term benefit of consumers.

As with 2 June 2016:

> "The high South Island prices … were inconsistent with workable competition … A market is statically efficient if price equals cost in a particular time period. A market is dynamically efficient in a workable competition sense if it tends towards an efficient equilibrium over time. Prices above cost due to innovation or superior performance can occur in a workably competitive market. The high … prices … were inconsistent with workable competition because they did not provide a useful price signal to potential entrants, and it was not the result of innovation or superior performance.
>
> "Meridian's profit from the higher … energy prices … was not a return to innovation or superior performance … The only reason it was able to employ this approach was because of its size—Meridian owns approximately 65 per cent of South Island generation capacity."[36]
>
> "This offer approach contributed to high spot prices … that:
> - did not signal scarcity
> - were not the result of innovation
> - created no useful signal for potential entrants".[37]

Meridian (along with Contact) has again adopted an "offer approach" which has resulted in "prices [moving] away from workably competitive levels"[38] and which "were inconsistent with workable competition".[39] This is clearly reflected in Meridian's Manapouri generation offers exceeding SRMC (based on a zero water value) and resulting in higher than otherwise (above workably competitive market) wholesale electricity prices.

By way of example also, the Authority's conclusions about "Inefficient locational signals" are directly applicable:[40]

> "Raising prices in the South Island when there is abundant supply has the potential to:
> (a) lead to higher South Island retail and hedge prices in the long term
> (b) incentivise over-investment in South Island peaking generation.
>
> "These would be inefficient outcomes if there is fundamentally no supply scarcity.
>
> …
>
> "The high South Island prices also did not provide an efficient signal for more demand response in the South Island. … Under these circumstances, this would mean that demand response providers would simply be avoiding artificially high energy prices, so any entry would be a response to this practice rather than a response to fundamental scarcity in the market."

The nature of the breach was a form of market manipulation

Bell Gully has provided advise to MDAG that "In addition to considering what conduct is acceptable in individual comparable markets, we consider that a court would also be persuaded by evidence that certain standards of conduct are consistent across several markets. In particular, we consider that the universality of the following provisions makes it highly likely that they form part of a "high standard of trading conduct": ... prohibitions on market manipulation, including: ... prohibitions on trading with an improper purpose".[41]

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[36] Electricity Authority, High Prices on 2 June 2016, Market performance review, 18 December 2017, paragraphs 9.1 and 9.2.
[37] Electricity Authority, High Prices on 2 June 2016, Market performance review, 18 December 2017, page ii.
[38] Electricity Authority, High Prices on 2 June 2016, Market performance review, 18 December 2017, paragraph 8.14.
[39] Electricity Authority, High Prices on 2 June 2016, Market performance review, 18 December 2017, section 9.
[40] Electricity Authority, High Prices on 2 June 2016, Market performance review, 18 December 2017, paragraphs 8.3 - 8.6.
[41] Bell Gully, INTERPRETATION OF THE TRADING CONDUCT PROVISIONS, Summary of interpretative aids, 27 August 2018, paragraph 4.6.

The UTS provisions also specify that "examples of what the Authority may consider to constitute an undesirable trading situation" include "manipulative or attempted manipulative trading activity" (clause 5.1(2)(a)).

Contact and Meridian's conduct was a form of "market manipulation" (artificially raising prices above cost-based or workably competitive levels" and had "an improper purpose" (to extract excessive revenues and profits to the detriment of competing retailers and consumers).

Wider environmental and NZ Inc reputational considerations

Haast considers that the wider implications for New Zealand of Contact and Meridian's conduct resulting in New Zealand relying more than necessary on thermal generation, resulting in higher CO2 emissions, is something that should be taken into account in considering the harm caused by Meridian's breach of the HSOTC Code requirements.

The nature of the breach is particularly cynical and hypocritical given Meridian likes to virtue signal about being 100% renewable. Meridian leverages off 100% renewable generation claims to improve its reputation and as part of its branding and marketing while, at the same time, its own actions and market abuses result in higher CO2 emissions.

It should also be recognised the increase in thermal/non-renewable generation resulting from Contact and Meridian's trading conduct also resulted in other forms of pollutants and emissions, from the additional coal-fired generation at Huntly, including sulphur dioxide, nitrogen oxides, particulate matter (PM), and heavy metals

Safe harbour provisions have been breached

Contact and Meridian's trading conduct is in breach of the safe harbour provisions, including as a consequence of the Clyde, Manapouri and Roxburgh offers resulting "in a material increase in the final price at which electricity is supplied" (clause 13.5B(1)(c)(i) of the Code) and Contact and Meridian benefitted "financially from an increase in the final price" (clause 13.5B(1)(c)(iii) of the Code).

We do not consider that Meridian can comply with the safe harbour provision that the "generator's offers are generally consistent with offers it has made when it has not been pivotal" (clause 13.5B(1)(c)(ii) of the Code) as Meridian is pivotal 100% of the time. Haast considers that it is not possible for Meridian to be protected by the safe harbour provisions because it is always pivotal.

With regards to Contact, they have not made offers for all of their available capacity and therefore also cannot be in the safe harbour.[42]

A breach finding would provide important HSOTC precedent

In our 23 August 2019 letter re "16 August 2019 Settlement Meetings" we noted "There is important precedent value from the Authority reaching a decision that Genesis' conduct had breached the HSOTC provisions and in relation to any sanctions that are determined". This is particularly true in relation to Meridian given it wasn't the first time Meridian has breached the HSOTC provisions.

It is clear from the Authority's previous breach finding that Contact and Meridian had been breaching the HSOTC provisions on a regular basis. Despite the Authority's warning at the time, it is clear Contact and

[42] Refer to Appendix 10.

Meridian have continued to conduct themselves in a way that breaches the HSOTC provisions and that this is not simply an isolated or one-off incident.

Haast consider it abundantly clear Contact and Meridian are in breach the HSOTC Code requirements and any reasonably well-informed market participant would have understood their actions were not of a high standard.

A finding that Contact and Meridian had breached the HSOTC provisions would provide useful precedent in relation to how the HSOTC Rules should be interpreted and what is a breach.

Using market power to manage locational price spreads

One of the likely motivations for Meridian and Contact to withhold generation from the spilling reservoirs is to manage the locational prices spreads between the lower South Island and the rest of the market. The Authority board has previous commented "the Board would have expected Meridian to have covered its North Island exposure using other available risk management products or, if it chose not to do that, then to bear the cost of the risk if it eventuates."[43] By continuing to use market power rather than the available hedge instruments to manage locational price risk Meridian and Contact are undermining liquidity in hedge markets and ignoring the warning letter which was issued to Meridian.

Remedy for the breach that Haast is seeking

Haast is seeking that wholesale electricity prices are reset on the basis of a $5 offer price for both Meridian (Manapouri) and Contact (Roxburgh and Clyde). The $5 level is chosen to reflect a near zero water value plus a small O&M component. We would support a sanction that not only required Contact and Meridian to pay back the excess spot prices, but also included a penalty element to send a strong message to generators that they should not use market power or engage in this type of conduct.

We note and support Meridian's view that where "a generator has take[n] advantage of a net pivotal position in circumstances where there is no energy or capacity shortage, prices should be "normalised" by being returned to workably competitive levels" and if "offers are reduced to a level … higher than "normal" … as Meridian has previously submitted, generators could well begin to actively seek net pivotal status".

Meridian's 100%-owned subsidiary similarly commented in favour of resetting offers at SRMC: "SRMC provides more accurate price signals for both buyers and investors. SRMC will also have the highly desirable effect of discouraging generators from exploiting transmission outages which is in the long term interest of consumers".[44]

Concluding remarks

The nature of Contact and Meridian's trading conduct is extraordinary. Wholesale prices are delivering at unprecedented levels in the context of record hydro storage and now relatively low gas prices.

In dry year situations there is uncertainty about the extent to which high prices genuinely reflect market circumstances (with uncertainty about what the genuine value (opportunity cost) of water is) or abuse of market power.

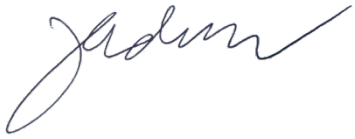
[43] 4 May 2017 Decision regarding Code breach on 6 June 2016 where Meridian withdrew offers to manage location prices.
[44] Powershop, Proposed actions of the Electricity Authority under Part 5 of the Electricity Industry Participation Code to correct the Undesirable Trading Situation on 26 March 2011, 26 March 2011.

In circumstances where there is water spill there is no such uncertainty. The water value is clearly zero. Offer prices that don't reflect the zero water value are a clear mis-use of market power.

Our simulations show Meridian's generation business has extracted excess revenue of $38m in the month since 10 November 2019 and Contact's by $23m. We consider that the scale of monopoly pricing goes well beyond a breach of the HSOTC provisions and amounts to a UTS. The situation is on-going and is currently leading to $3-4m per day of excess generation revenue.[45]

There is important precedent value from the Authority reaching a decision that Contact and Meridian's conduct breached the HSOTC Rules and UTS provisions and in relation to any sanctions that are determined.

Yours sincerely,



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[45] Refer to Appendix 8.

Appendix 1: Manapouri generation offers

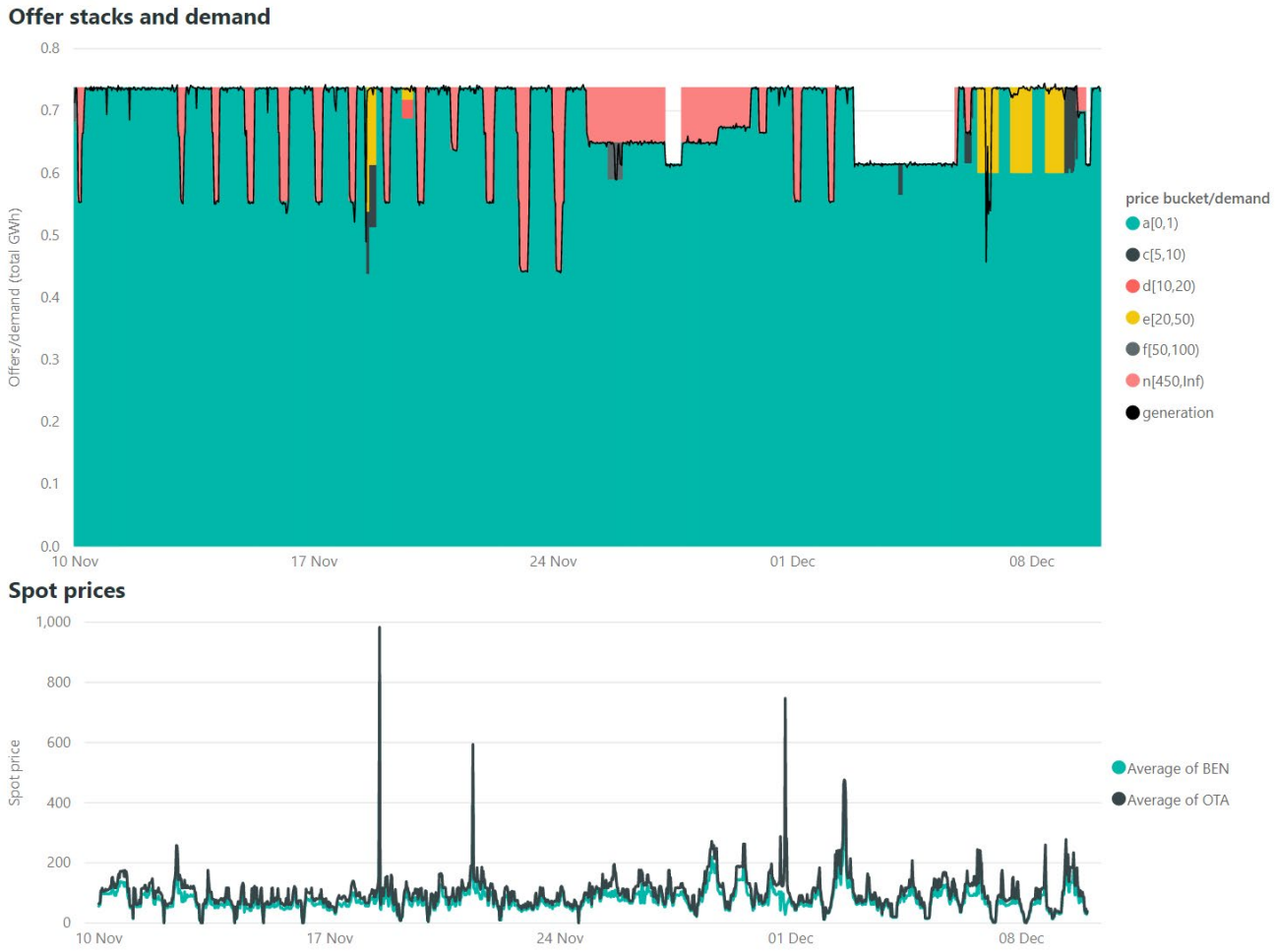


Figure 8: Manapouri offer stack and generation from 10 November, when Meridian commenced spilling, to 9 December. The offers shaded rose indicate capacity offered to the market above $450.

Appendix 2: Waitaki generation offers

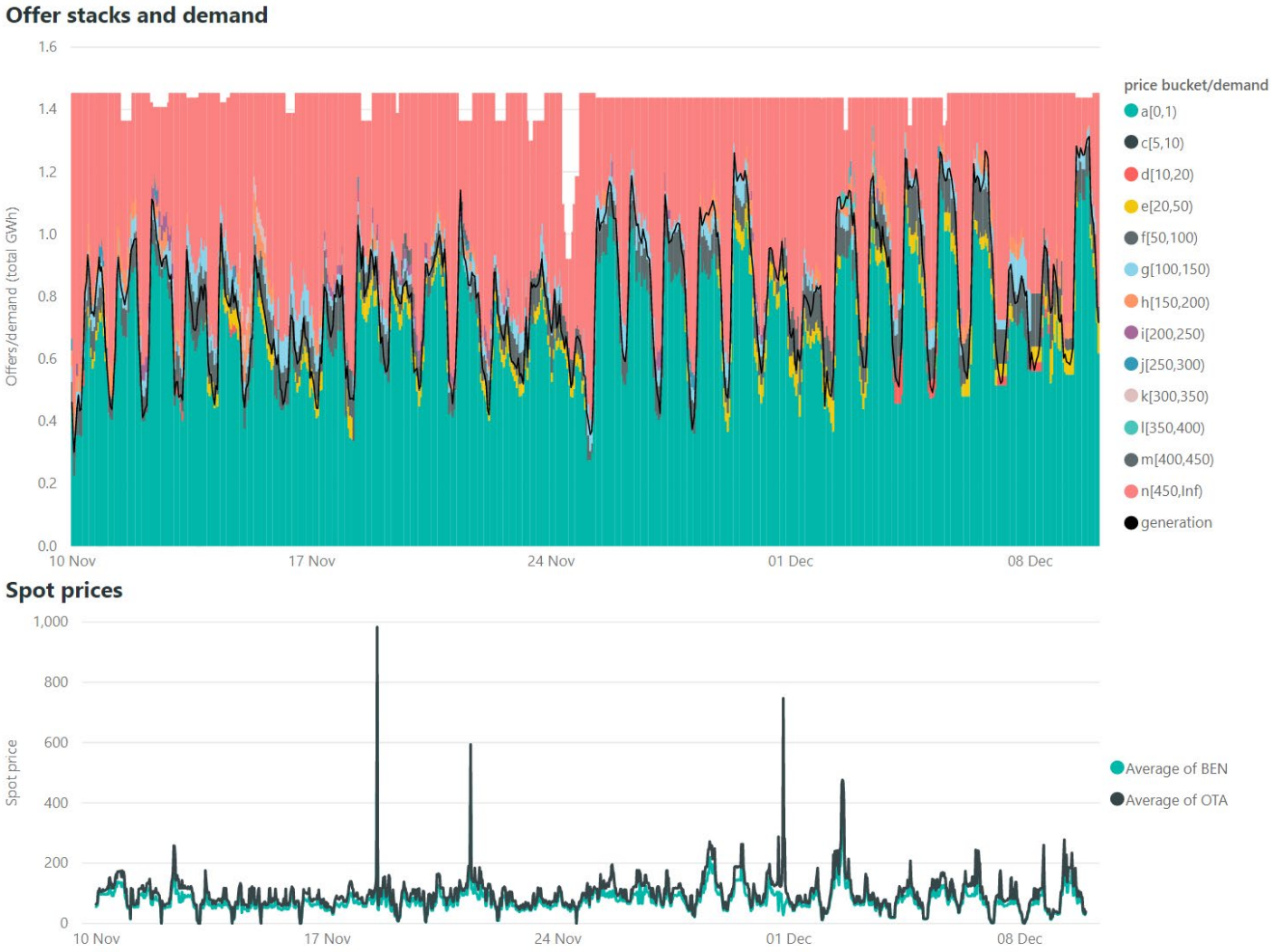


Figure 9: Waitaki offer stack and generation from 10 November, when Meridian commenced spilling at Manapouri, to 9 December. Offers resulted in prices rarely falling below $50, despite frequent occasions when Manapouri was under-utilised and excess water was spilled.

Appendix 3: Clutha generation offers

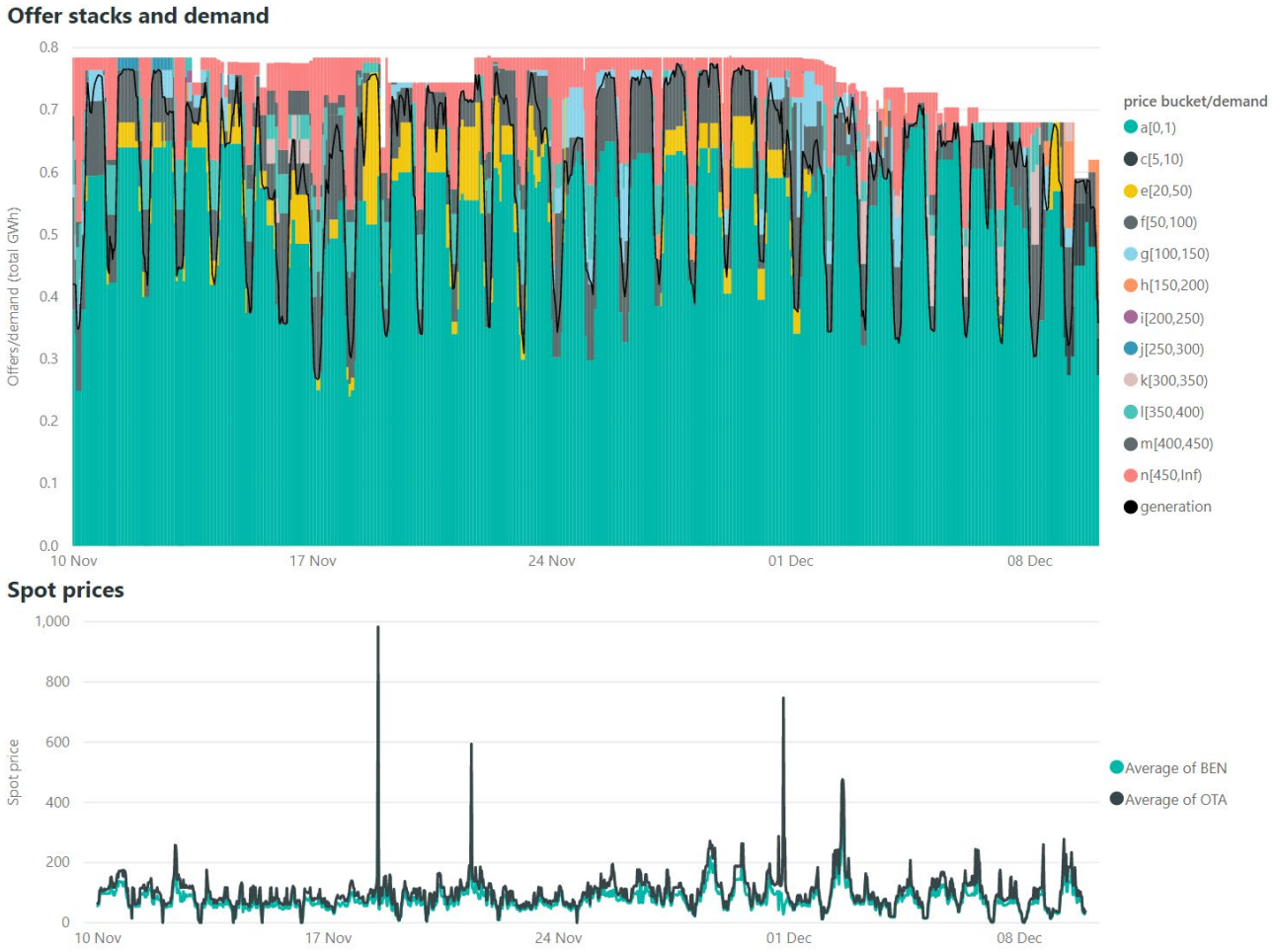


Figure 10: Clutha offer stack and generation from 10 November to 9 December. Offers resulted in prices rarely falling below $50 and frequently reaching over $150, while the scheme almost always had spare capacity but was spilling water to support prices.

Appendix 4: Mercury (Waikato river chain) hydro generation

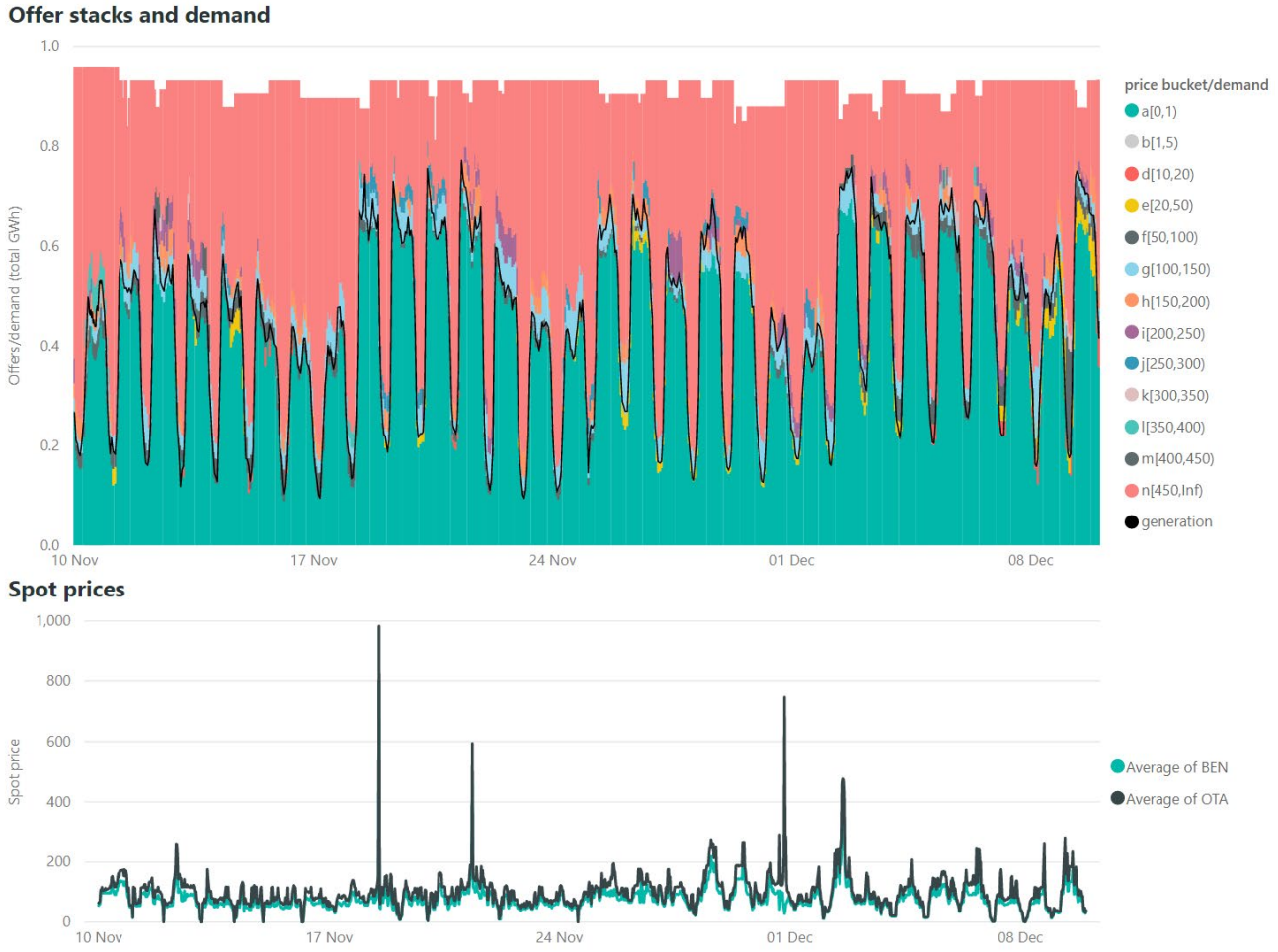


Figure 11: An increase in South Island offer volume at $5 would have reduced dispatch of storable North Island water

Appendix 5: Genesis (Huntly) thermal generation

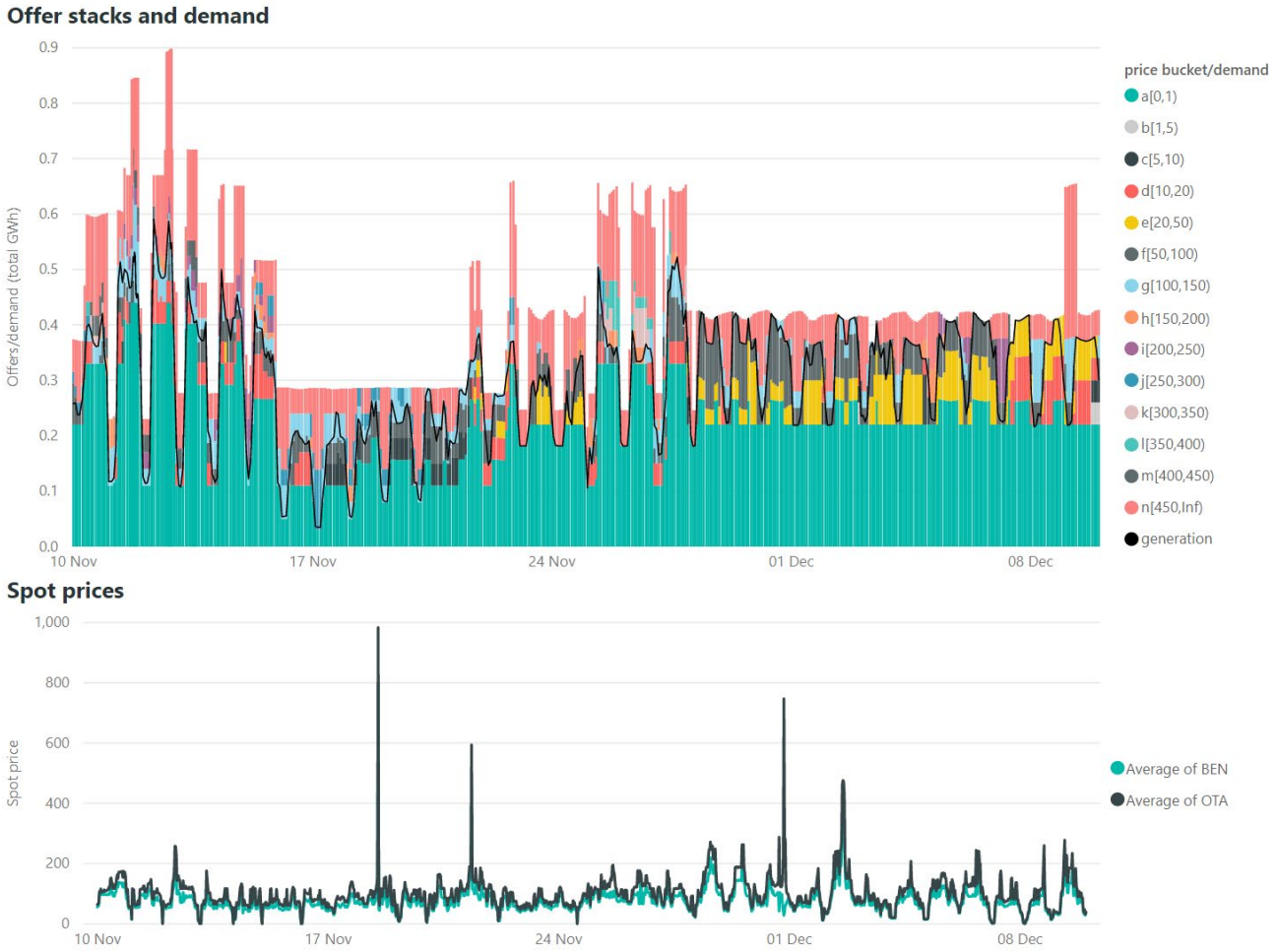


Figure 12: An increase in South Island offer volume at $5 would have reduced dispatch of Huntly generation

Appendix 6: Assumptions made during analysis

- For the vSPD override runs, it was assumed that Manapouri and Clutha offered all available capacity at $5.

- For the excess CO2 emissions analysis, the following emission rates were assumed (tonnes of CO2 per MWh of electricity generated)[46]:
    - HLY5: 0.394.
    - HLY1-4: 0.974 if burning coal, 0.581 if burning gas.
    - SFD peakers: 0.506.

- For the excess CO2 emissions analysis, it was assumed that rankines burnt 50% gas, 50% coal.

- It was assumed that lost North Island storage could be estimated as the difference in generation under the base scenario and vSPD override summed across hydro stations in the Waikato and Waikaremoana catchments (ARA2201 ARA0, ARI1101 ARI0, ARI1102 ARI0, ATI2201 ATI0, KPO1101 KPO0, MTI2201 MTI0, OHK2201 OHK0, RPO2201 RPO0, TKU2201 TKU0, TUI1101 KTW0, TUI1101 PRI0, TUI1101 TUI0, WKM2201 WKM0, and WPA2201 WPA0).

[46] NB the source of the CO2 emission rates is as follows: for HLY5 and HLY1-4 when burning coal: Table 12 of this document: https://www.waikatoregion.govt.nz/assets/PageFiles/21888/TR201218.pdf. The figure for HLY1-4 when burning gas was obtained from Tables 10 and 12 of the same document, specifically by multiplying the coal emission rate from Table 12 by the ratio of gas to coal combustion emissions from Table 10 (53.3/89.4). The figure for the SFD peaker was obtained by multiplying its heat rate (9.5GJ/MWh, from http://www.epoc.org.nz/papers/SecurityofSupply-Fulton2018.pdf, Appendix 1) by an estimated CO2 emission rate for gas plant (53.3, from Table 12 of this document: https://www.waikatoregion.govt.nz/assets/PageFiles/21888/TR201218.pdf).

Appendix 7: VSPD files

vSPD files used in the analysis. Available from https://www.emi.ea.govt.nz/vSPD-online

JOB NAME	OVERRIDE	DESCRIPTION	CREATED BY	CREATED DATE	FINISHED	DURATION	DOWNLOAD
+ nov_11-14_mrc_overrride	Man Rox Clyde v2	Nov 11-14 with Manapouri/Roxborough/Clyde offering all volume at $5	jonathan	10/12/2019	10/12/19 19:20	23 minutes and 7 seconds	
+ nov_11-14_base		Nov 11-14 base case (no override)	jonathan	10/12/2019	10/12/19 18:57	18 minutes and 30 seconds	
+ dec_3-9_base		Dec 3-9 base case (no override)	jonathan	10/12/2019	10/12/19 18:24	30 minutes and 42 seconds	
+ dec_3-9_mrc_overrride	Man Rox Clyde v2	Dec 3-9 with Manapouri/Roxborough/Clyde offering all volume at $5	jonathan	10/12/2019	10/12/19 17:53	32 minutes and 2 seconds	
+ nov_27-dec_2_base		Nov 27-Dec 2 base case (no override)	jonathan	10/12/2019	10/12/19 17:21	26 minutes and 10 seconds	
+ nov_27-dec_2_mrc_overrride	Man Rox Clyde v2	Nov 27-Dec 2 with Manapouri/Roxborough/Clyde offering all volume at $5	jonathan	10/12/2019	10/12/19 16:55	28 minutes and 16 seconds	
+ nov_15-21_base		Nov 15-21 base case (no override)	jonathan	10/12/2019	10/12/19 16:23	30 minutes and 8 seconds	
+ nov_22-26_base		Nov 22-26 base case (no override)	jonathan	10/12/2019	10/12/19 15:52	21 minutes and 35 seconds	
+ nov_15-21_mrc_overrride	Man Rox Clyde v2	Nov 15-21 with Manapouri/Roxborough/Clyde offering all volume at $5	jonathan	10/12/2019	10/12/19 15:27	33 minutes and 7 seconds	
+ nov_22-26_mrc_overrride	Man Rox Clyde v2	Nov 22-26 with Manapouri/Roxborough/Clyde offering all volume at $5	jonathan	10/12/2019	10/12/19 14:47	25 minutes and 13 seconds	

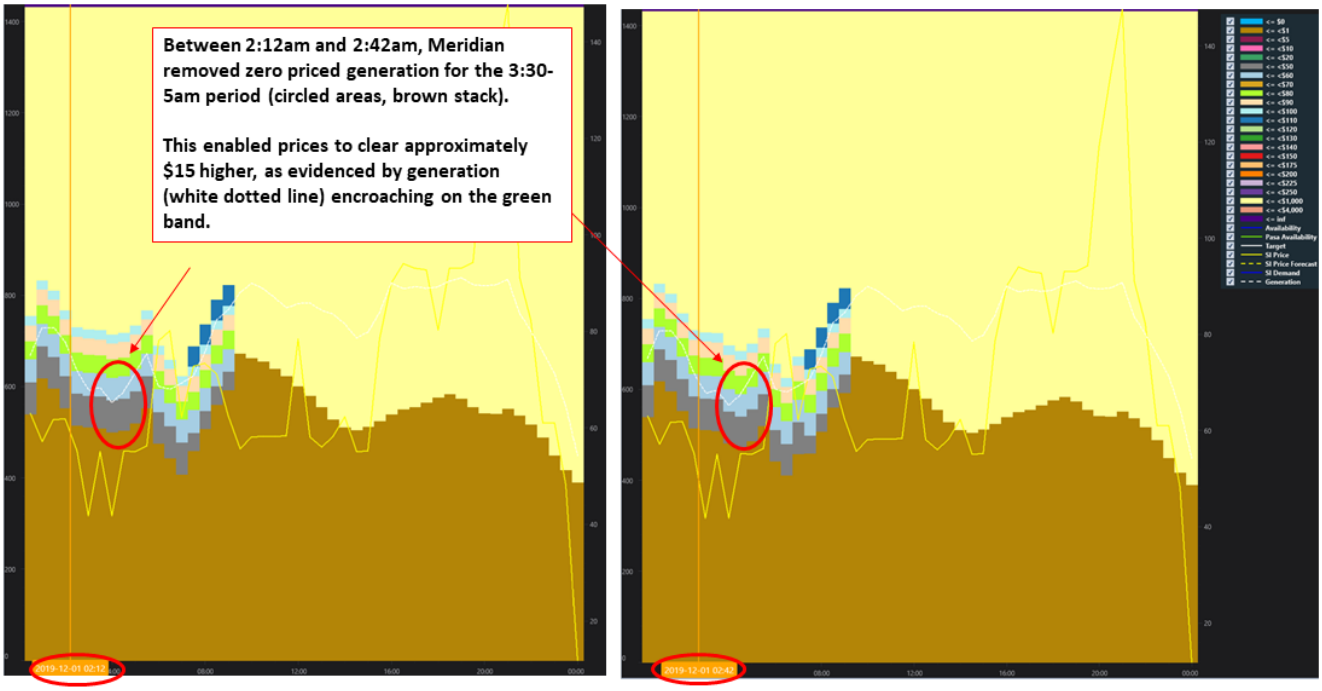
Appendix 8: Summary data from VSPD runs

The following table highlights some differences between actual dispatch and the VSPD runs outputs if the spilling hydro catchments were offered at $5.

Metric	Unit	Value (sum of all trading periods, 11/11-9/12)	Value (daily avg)	Description*
ota_excess	$/MWh	NA	32.9	Excess OTA price
ben_excess	$/Mwh	NA	30.9	Excess BEN price
revenue_excess	$	99,099,453	3,417,223	Excess revenue collected by all generators
revenue_excess_meri	$	37,970,356	1,309,323	Excess revenue collected by Meridian
revenue_excess_contact	$	22,649,108	781,004	Excess revenue collected by Contact
cost_excess	$	95,634,700	3,297,748	Excess price paid across all load nodes
co2_excess	tonnes	5,984	206	Excess CO2 released across all thermal generators
lost_ni_storage	MWh	15,036	519	Reduction in storable NI water as a result of unnecessary dispatch
reduced_hvdc	MWh	32,613	1,125	Reduction in HVDC flows
*'Excess' or 'reduction' refers to the difference in values between the actual outcome and that output from vSPD assuming Manapouri/Clutha offered all volume at $5				

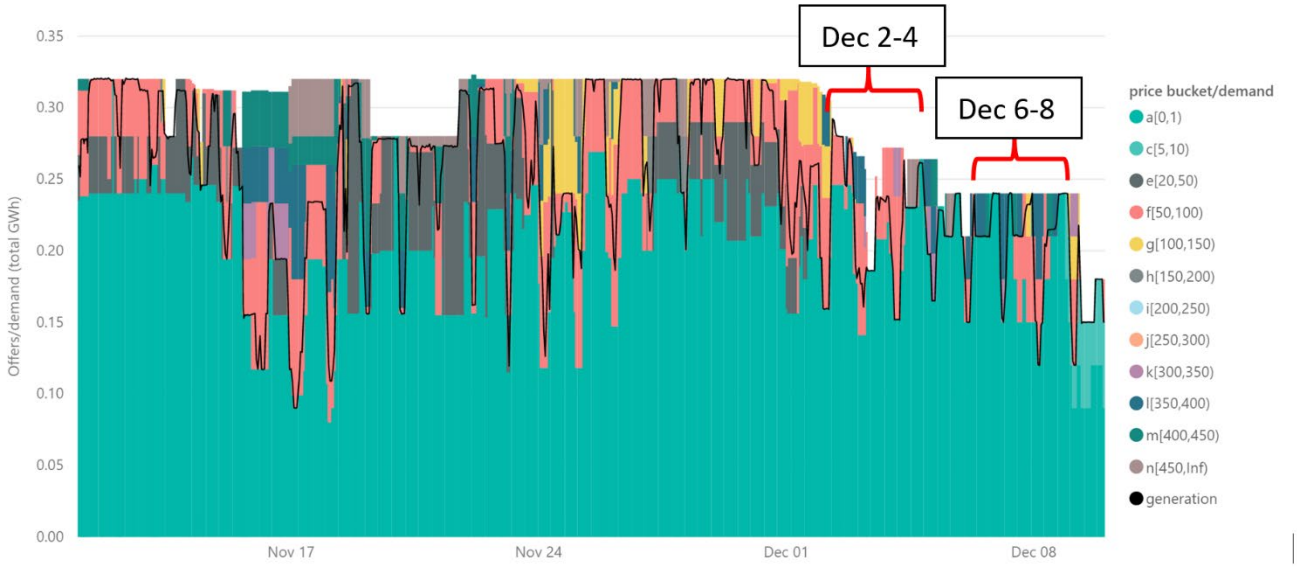
Appendix 9: Example of Meridian pricing up Waitaki while Manapouri is spilling

Example of Meridian pricing up Waitaki offer stacks while marginal Manapouri water was offered at $1000 and Lake Manapouri was spilling

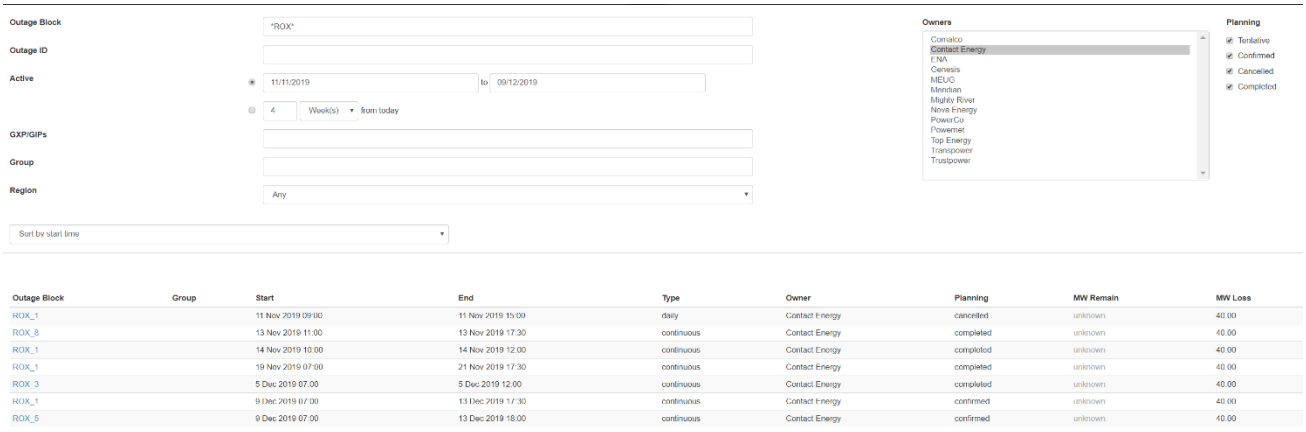


Appendix 10: Evidence for offers not being made for full ROX available capacity.

There appears to be a number of periods where the full ROX capacity was not offered and there was no declared outage that explained the missing offers, but in particular we highlight the periods between Dec 2-4 and Dec 6-8.



ROX outages declared on POCP:



NOTIFICATION OF BREACH

Notification Date: 12 December 2019

CONTACT DETAILS

Reporting Participant: Haast Energy Trading

Contact Name: Phillip Anderson

E-mail: phill@haastenergy.com

Mobile: +64 21 460 040

Reporting Participant: ecotricity

Contact Name: Al Yates

E-mail: alyates@ecotricity.co.nz

Reporting Participant: Electric Kiwi

Contact Name: Luke Blincoe

E-mail: luke.blincoe@electrickiwi.co.nz

Reporting Participant: Flick Electric

Contact Name: Steve O'Connor

E-mail: steve.oconnor@flickelectric.co.nz

Reporting Participant: Oji Fibre

Contact Name: Darren Gilchrist

E-mail: Darren.Gilchrist@ojifs.com

Reporting Participant: Pulse Energy Alliance

Contact Name: Gary Holden

E-mail: gary.holden@pulseenergy.co.nz

Reporting Participant: Vocus

Contact Name: Emily Acland

E-mail: Emily.Acland@vocusgroup.co.nz

PARTICIPANT ALLEGED TO BE IN BREACH

Contact Energy and Meridian Energy

RULE/REGULATION

Specify regulation/s or rule/s allegedly breached.

Clause 13.5A of the Electricity Industry Participation Code.

ALLEGED BREACH OCCURRED

Date: 10 November 2019 - ongoing as at the date of this Claim.

Time:

DESCRIPTION OF CIRCUMSTANCES

Refer to the letter "Reporting of Contact and Meridian's breaches of the High Standard of Trading Conduct requirements and Undesirable Trading Situation", dated 12 December 2019.

SUPPORTING ATTACHMENTS

Refer to the letter "Reporting of Contact and Meridian's breaches of the High Standard of Trading Conduct requirements and Undesirable Trading Situation", dated 12December 2019.

MARKET OR OPERATIONAL IMPACT

Refer to the letter "Reporting of Contact and Meridian's breaches of the High Standard of Trading Conduct requirements and Undesirable Trading Situation", dated 12 December 2019.

RESOLUTION TO THIS EVENT

Issuing breach allegation.

STEPS TAKEN TO PREVENT RECURRING

Issuing breach allegation.

CONFIDENTIALITY:

Not applicable.

Please send completed form to:

compliance@ea.govt.nz

18 December 2019

Jason Woolley
General Counsel
Meridian Energy Limited

By Email

Dear Jason,

Report of alleged breach: clause 13.5A.

File ref: 1912MERI2

On 12 December 2019, seven participants jointly alleged that Meridian Energy Limited's conduct was in breach of clause 13.5A of the Electricity Industry Participation Code 2010 (Code).

The seven participants that alleged the breach were:

- Haast Energy Trading Limited
- ecotricity Limited
- Electric Kiwi Limited
- Flick Electric Limited
- OJI Fibre Solutions (NZ) Limited
- Pulse Energy Alliance LP
- Switch Utilities Limited (Vocus)

It was alleged that on 10 November 2019 and ongoing Meridian was breaching the high standard of trading conduct provision in the Code. Please find attached a copy of the alleged breach, a letter to the Authority supporting the alleged breach, and the spreadsheet referred to in footnote 3 of that letter.

The letter to the Authority also claims the breach also qualifies as an undesirable trading situation (UTS). Please note this alleged breach is being processed independent of the UTS claim.

The purpose of this letter is to collate information so that the Authority's Compliance Committee can decide whether the matter requires a formal investigation to be undertaken.

Accordingly, the Authority requests that you provide information with respect to the following matters:

1. whether you accept or deny the alleged breach

2. the full circumstances surrounding the alleged breach

3. your understanding of the extent of actual and potential market and operational impact and the rationale for this

4. any steps taken to resolve the alleged breach

5. any steps taken to prevent the matter reoccurring in the future.

All information supplied to the Authority in respect of this matter will be used for investigative purposes only. However, note that all information provided to the Authority will be subject to the Official Information Act 1982. Please identify any information that you consider to be confidential or commercially sensitive.

Please provide your written response by 31 January 2020.

If you have any questions please contact me at 04 460 8864 or peter.wakefield@ea.govt.nz.

I look forward to your response.

Yours sincerely

Peter Wakefield
Senior Investigator

Peter Wakefield

From: Peter Wakefield
Sent: Thursday, 19 December 2019 3:20 PM
To: Phillip Anderson
Cc: Luke Blincoe; gary.holden; to: Al Yates; Darren Gilchrist - Oji FS; Steve O'Connor; Emily Acland
Subject: RE: UTS and Code Breach claims

Dear Phill

As discussed I am processing the breaches alleged of Contact and Meridian. In doing so I will be following our Code breach process. This process is described at a high level on our website https://www.ea.govt.nz/code-and-compliance/compliance/code-breach-process/ and partly copied below.
At this stage I am at the fact finding stage and have sent letters to both participants requesting responses by 31 January 2020. I will then report the alleged breaches to the Authority's Compliance Committee. The Committee's next meeting is scheduled for 16 March 2020, however I will see if these cases can be considered at an earlier date.

I have recorded the breaches as being jointly alleged by

- Haast Energy Trading Limited
- ecotricity Limited
- Electric Kiwi Limited
- Flick Electric Limited
- OJI Fibre Solutions (NZ) Limited
- Pulse Energy Alliance LP
- Switch Utilities Limited (Vocus)

Please note these alleged breaches are being processed independent of the associated UTS claim.

How we deal with alleged breaches

Our process for dealing with alleged breaches of
(Enforcement) Regulations.

Fact finding

When an alleged breach report is received, we co
party. If necessary, the reporting party, or other re
information.

Compliance Committee

Based on the information gathered, a report on th
Committee. The Compliance Committee decides
This may involve:

- deciding to take no further action
- issuing a warning letter
- appointing an investigator to more fully investigate

Regards

Peter Wakefield
Senior Investigator

DDI: +64 4 460 8864
Mob: +64 21 392 715
Fax: +64 4 460 8879

Peter Wakefield

From: Peter Wakefield
Sent: Monday, 13 January 2020 10:07 AM
To: Jason Woolley
Cc: Simone O'Loughlin; Sam Fleming
Subject: RE: Breach of clause 13.5A alleged of Meridian

Hi Jason

Thank you for your email concerning an extension to the response date for this alleged breach.

I look forward to receiving Meridian's response on the revised date of 14 February 2020.

Regards
Peter

From: Jason Woolley <Jason.Woolley@MeridianEnergy.co.nz>
Sent: Monday, 13 January 2020 8:28 AM
To: Peter Wakefield <Peter.Wakefield@ea.govt.nz>
Cc: Simone O'Loughlin <Simone.OLoughlin@MeridianEnergy.co.nz>; Sam Fleming <Sam.Fleming@MeridianEnergy.co.nz>
Subject: RE: Breach of clause 13.5A alleged of Meridian

Hi Peter
Further to the below and your voicemail of Friday, and as discussed just now, if Contact as the other party alleged to have breached have sought and been given additional time to respond, we would like the same. We will accordingly get our response to you by 14 February at the very latest although we'll endeavour to make it sooner. I'd be grateful if you could confirm that this is acceptable.
Regards
Jason

From: Peter Wakefield <Peter.Wakefield@ea.govt.nz>
Sent: Wednesday, 18 December 2019 4:23 pm
To: Jason Woolley <Jason.Woolley@MeridianEnergy.co.nz>
Cc: Simone O'Loughlin <Simone.OLoughlin@MeridianEnergy.co.nz>; Sam Fleming <Sam.Fleming@MeridianEnergy.co.nz>
Subject: RE: Breach of clause 13.5A alleged of Meridian

Hi Jason

Please find attached a fact finding letter along with relevant attachments for this alleged breach.

Regards

Peter Wakefield
Senior Investigator

DDI: +64 4 460 8864
Mob: +64 21 392 715
Fax: +64 4 460 8879
Email: peter.wakefield@ea.govt.nz

Electricity Authority - Te Mana Hiko
Level 7, Harbour Tower, 2 Hunter Street
PO Box 10041

Peter Wakefield

From: Sam Fleming <Sam.Fleming@MeridianEnergy.co.nz>
Sent: Friday, 14 February 2020 4:07 PM
To: Peter Wakefield
Cc: Jason Woolley; Chris Ewers
Subject: RE: Breach of clause 13.5A alleged of Meridian
Attachments: Letter to EA in response to HSOTC breach allegation - 14 02 20 Final.pdf; Letter to EA in response to HSOTC breach allegation - 14 02 20 Final Redacted.pdf; Sapere - Economic review of Haast Energy complaint.pdf

Hi Peter

Please see attached Meridian's response to your fact finding letter of 18 December 2019.

Our letter contains confidential and commercially sensitive information therefore I have also attached a redacted version for use in the event that the Authority wishes to make our response public.

Finally, I have attached a supporting paper from Sapere Research Group that is referenced in our letter.

Please let us know if we can be of further assistance.

Kind regards

Sam Fleming – Regulatory Counsel
Meridian Energy Limited
Level 2, 55 Lady Elizabeth Lane
PO Box 10840, Wellington 6143, New Zealand
DDI. 04 803 2581 M. 021 732 398

From: Peter Wakefield <Peter.Wakefield@ea.govt.nz>
Sent: Monday, 13 January 2020 10:07 a.m.
To: Jason Woolley <Jason.Woolley@MeridianEnergy.co.nz>
Cc: Simone O'Loughlin <Simone.OLoughlin@MeridianEnergy.co.nz>; Sam Fleming <Sam.Fleming@MeridianEnergy.co.nz>
Subject: RE: Breach of clause 13.5A alleged of Meridian

Hi Jason

Thank you for your email concerning an extension to the response date for this alleged breach.

I look forward to receiving Meridian's response on the revised date of 14 February 2020.

Regards
Peter

From: Jason Woolley <Jason.Woolley@MeridianEnergy.co.nz>
Sent: Monday, 13 January 2020 8:28 AM

Meridian Energy Limited
P O Box 10840 Wellington
New Zealand
0800 496 496
meridian.co.nz

14 February 2020

Peter Wakefield
Senior Investigator
Electricity Authority – Te Mana Hiko
Level 7, ASB Bank Tower, 2 Hunter Street
PO Box 10041
Wellington 6143

CONFIDENTIAL AND COMMERCIALLY SENSITIVE

Dear Peter

Meridian's reponse to report of alleged breach of clause 13.5A of the Code

Introduction

1 This letter responds to your fact-finding letter of 18 December 2019 on an alleged breach of clause 13.5A of the Electricity Industry Participation Code 2010 ("**Code**"). Haast Energy Trading Limited and various others ("**complainants**") allege that from 11 November 2019, Meridian breached the high standard of trading conduct ("**HSOTC**") provisions in clause 13.5A of the Code.

2 In this response letter, we provide the information sought by you in the fact-finding letter and set out our position on the allegations made by the complainants, including the allegation that the nature and scale of the alleged HSOTC breach by Meridian qualifies as an Undesirable Trading Situation ("**UTS**") under Part 5 of the Code. Parts of this letter are commercially sensitive and provided to the Electricity Authority ("**Authority**") in confidence. We ask that the Authority preserves that confidentiality. We will provide the Authority separately with a copy of this letter with the commercially sensitive material redacted.

3 Meridian notes at the outset that the weather events of late 2019 were exceptional. The mean total inflow into Lake Manapōuri during November and December 2019 was the highest since records began in 1932. The mean inflow into Lake Te Anau in these two months was the second highest since records began in 1926. This resulted in the second highest lake levels ever recorded. Meridian used its best endeavours to manage the weather events in real time based on our experience of managing similar but less extreme situations. The allegations made by the complainants as to how we might have done better in managing the events are made with the benefit of hindsight, after extensive modelling, and with limited understanding of the physical challenges of operating hydro schemes during inflow events of this scale.

4 The complainants in our view invite the Authority to place an unduly narrow and unwarranted focus on the relationship between short run marginal cost ("**SRMC**") and offers on the wholesale spot market. Neither the HSOTC nor the UTS provisions in the Code refer to the word 'cost' let alone reference the concept of SRMC. Re-interpreting them to effectively require a tight link between offers and SRMC presents a real risk of undermining the fundamental design of the New Zealand wholesale market. In any event the better measure of the true costs of generation is long run marginal cost ("**LRMC**") rather than SRMC. This is because generation costs are typically dominated more by investment costs rather than fuel costs. In order to ensure the market provides the right incentives for sustainable and efficient entry participants must be able to recover their investment costs. A strict obligation to price at SRMC, as the claimants advocate, would not create the appropriate incentives for parties to invest in new – particularly renewable – generation capacity, which would ultimately operate to the long-term detriment of consumers.

Information requested from Meridian in the fact-finding letter

Does Meridian accept or deny the alleged breach

5 Meridian denies the allegation that Meridian breached the HSOTC provisions of the Code by offering "tranches of Manapōuri hydro generation at well above its SRMC." This is the essence of the complaint, i.e. it is about the price at which Meridian and Contact submitted offers during the periods of spill in November, December and January. It is not per se about the fact of the spill occurring but rather that during those periods of spill Meridian and Contact's SRMC of generation was, according to the complainants, zero or no greater than $5/MWh and it was a breach of the Code for Meridian and Contact to make offers in excess of this measure of cost.

6 The complainants are also critical of Meridian and Contact, in their view, failing to minimise spill but this goes in their view to the alleged harm caused by pricing in excess of SRMC rather than being alleged as a separate breach of the Code.[1] We note that the principal complainant, Haast Energy Trading, has lodged a separate and seemingly conflicting complaint about Meridian with the Guardians of Lake Manapōuri, Environment Southland and the Ministers for Climate Change, the Environment and Conservation in respect of the November and December period. A key allegation in that complaint is that Meridian should have acted more proactively and earlier to *increase* spill from Manapōuri and thereby reduce the period of time for which the lake was at high levels.

7 Meridian also disagrees with the claim that "the nature and scale of the HSOTC breach – specifically the manipulative trading activity and quantum of the wealth transfers – also qualifies as an undesirable trading situation."

The full circumstances surrounding the alleged breach

Market conditions

8 At the time of the alleged Code breach and UTS and immediately preceding that period, the wholesale spot market was influenced by low hydro storage and ongoing gas supply concerns. At the start of November 2019 national hydro storage was below average for the time of year. Uncertainty continued in the gas market and therefore in relation to thermal generation in the wholesale electricity market. There was an unplanned reduction in production at Kupe in late September and early October, and a planned outage of Kupe from 30 October to 27 November 2019. National demand in the last quarter of the 2019 calendar year was also higher than the average for the last 10 years. Because of the tightening of supply and increased demand, wholesale market prices prior to December were generally above average.

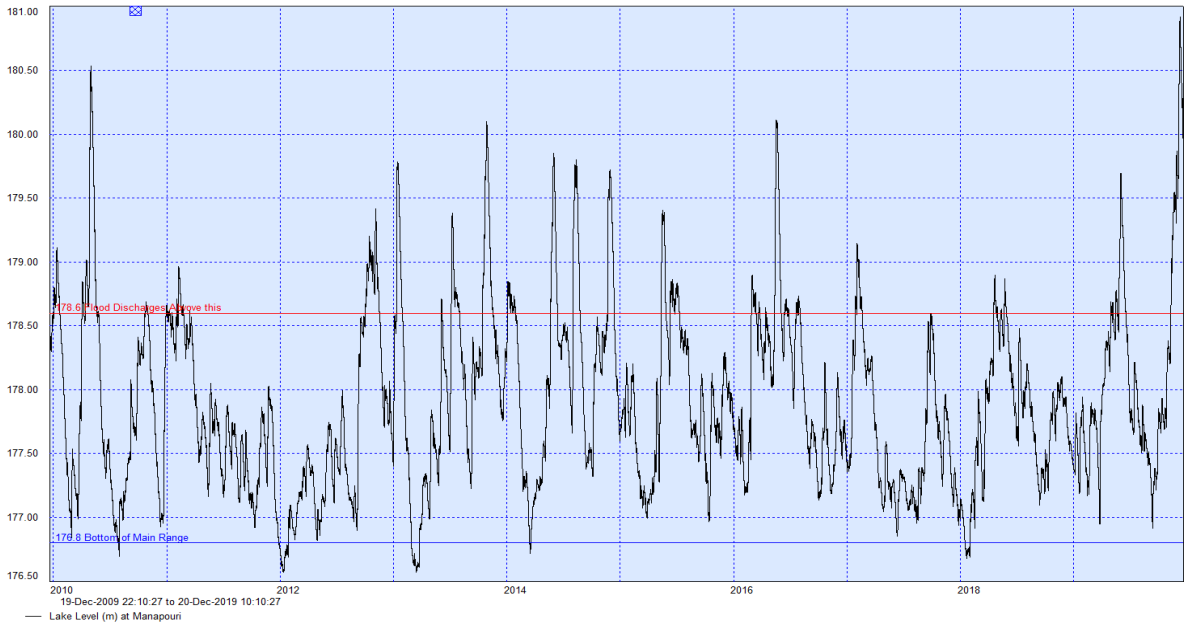
Meridian's hydro schemes

9 As the complainants make allegations in respect of Meridian's Manapōuri and Waitaki schemes an understanding of those schemes and their operation is necessary to then understand the management of the inflow events and Meridian's trading in November and December.

10 The Manapōuri scheme is fed by two lakes – Te Anau and Manapōuri. Both lakes have very little storage capacity compared to the inflows they receive. It is common to receive inflow events that result in spill down the Waiau River. The enabling environmental legislation for the Manapōuri scheme is designed such that regular large flows are expected down the River, much like what would occur in a natural and uncontrolled state. Figure 1 below shows the level of Lake Manapōuri since 2010, including frequent large inflow events necessitating spill. As can be seen, the recent inflow event resulted in the highest lake levels recorded since 2010 and in fact, lake levels were the second highest ever recorded.

[1] See the complainants' letter to the Authority of 12 December 2019 under the heading 'Wider environmental and NZ Inc reputational considerations.'

Figure 1: Manapōuri Lake Levels



11 The Waitaki scheme is a chain of eight power stations (six controlled by Meridian) with three lakes in the headwaters – Tekapo, Pūkaki, and Ōhau – connected by a series of canals and rivers. Pūkaki (and to a lesser extent Tekapo) have significant storage capacity. Lake Tekapo is not managed by Meridian. Lake Ōhau has little storage capacity and a narrow operating range. Control gates feed Lake Ōhau water into the canal system and through all of the three Ōhau power stations, A, B, and C. When the level of Lake Ōhau is above 520.25m, the Ōhau Canal gate flow must be at least 170 cumecs.[2] This requires minimum generation at Ōhau A, B and C of 227MW. When the level of Lake Ōhau is above 520.4m, two things occur:

11.1 Ōhau Canal gate flow must be 200 cumecs.[3] This requires minimum generation on Ōhau A, B and C of 267MW.

11.2 Water will begin to flow uncontrolled over the weir, into the Upper Ōhau River, and then into Lake Ruataniwha. This water must then be generated though both Ōhau B and Ōhau C or spilled from the Ruataniwha Spillway into Lake Benmore.

12 In addition to Lake Ruataniwha, there are small storage lakes above the next three power stations in the mid-Waitaki – Benmore, Aviemore, and Waitaki. High inflows in the headwaters of the scheme are generally accompanied by high tributary flows into Lake Benmore, for example from the Ahuriri River, raising the generation required to pass this water (in addition to Ōhau C discharges and any spill from lakes Ruataniwha, Pūkaki and Tekapo) though the Benmore, Aviemore and Waitaki power stations. At times, it is not possible to generate with all these uncontrolled inflows and mid-Waitaki spill will occur at some or all of the three stations. When we can, Meridian prefers to spill from Aviemore and Waitaki as they are less efficient stations.

Plant outages

13 During the November and December inflow events, several of Meridian's generating units were on outages, for example:[4]

13.1 Unit 6 at Ōhau A station was on a long-term outage for half-life refurbishment (this outage also limits canal flows and generation capacity at Ōhau B and Ōhau C stations).

---

[2] Environment Canterbury *Resource Consent CRC905330.3*, Condition 6, Operating Rules 2.3.
[3] Ibid.
[4] Full outage information was posted to POCP.

13.2 Benmore station had several outages across November for cooling water project work, including a full station outage on 24 November.

13.3 Unit 4 at Manapōuri has been out since October because of bearing issues.

Transmission constraints

14 Transmission constraints affected generation at both Manapōuri and throughout the Waitaki chain during the period of the allegations. For example:

14.1 From 25 to 29 November, an outage on the NMA_TWI circuit constrained Manapōuri generation. Meridian's analysis was that this would constrain Manapōuri generation to 650 MW. However, on 25 November the forward schedules showed this constraint to limit Manapōuri generation to around 450 MW and in real time the system operator constrained back Manapōuri generation to around 415 MW. A system operator modelling error was subsequently found to be double counting the 50 MW load at Tiwai for the fourth potline and unnecessarily increasing the severity of the constraint. This error has been self-reported by the system operator[5] as a Code breach and corrected, meaning that when the same outage occurred on 9 December generation was less constrained.

14.2 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. Transpower has advised that the outage will be in place until a temporary solution is implemented and that they anticipate this will be completed by April 2020. The ISL_LIV_1 outage causes 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 at that time to around 200 MW, compared to the nameplate capacity of 325 MW for the two stations combined. This constraint is sensitive to the level of Clutha and Manapōuri generation, which were both generating significant volumes at the time.

14.3 For short periods on 18 November and between 6 and 7 December the system operator issued Customer Advice Notices for electrical storms and reclassified risk on several transmission circuits affecting Manapōuri generation.

14.4 Meridian generation was also limited at times by the bi-pole capacity of the HVDC link and Southland export constraints.

15 Meridian offers during the period of the allegations S9(2)(b)(ii) [redacted]. In the period to which the allegations relate, neither Meridian's offers nor market prices were particularly high relative to other offers in the market or to average market prices.

16 Meridian also manages locational price risks using risk management products. However the risk management products available in the hedge market, including those in the financial transmission rights ("**FTR**"), Australian Securities Exchange ("**ASX**"), and Over the Counter ("**OTC**") markets are not always sufficient in their range and scope to cover locational price risks of the kinds Meridian experienced. Meridian is a significant purchaser of FTR volumes in the market but there are not sufficient volumes available for participants to cover all their risk so there remains an incentive for generators to manage their offers in an attempt to avoid financial loss as a result of constraints. The ASX and FTR markets provide homogeneous baseload products that cover months or quarters at a time at set locations. Neither market provides a product that is well suited to cover transient outages (particularly unplanned outages), the derating of transmission lines during electrical storms, or modelling errors. We also note that MAN2201 is not one of the current eight FTR nodes. The OTC market is generally more flexible provided that risks are forecast ahead of time and a willing counterparty can be found (something that is challenging for risk like

[5] Letter to the Electricity Authority Compliance Team from Scott Avery of Transpower, dated 19 December 2019.

this at Manapōuri). All hedge markets come with their own costs and risks that can make them relatively expensive risk management tools.

The inflow events

17 Over the period to which the allegations relate, there were two significant inflow events in both the Waiau and Waitaki catchments, the first in the second week of November and the second during the first week of December. All Meridian spill data for the relevant period has been supplied to the Authority. The various instances of spill can be broken down to three broad classes with different catchment management challenges and periods of time associated:

17.1 **Spill in the Waiau catchment at Manapōuri Lake Control.** This began on 9 November and continued until 16 January. Spill volumes peaked on 8 December, coinciding with the second, significant inflow event. While it is not uncommon to enter the high range of the Waiau lakes and spill, back-to-back inflow events and lake levels like those seen in December are rare and exceptional. In fact, lake levels in this event were the second highest ever recorded.

17.2 **Spill and mandatory canal flow to manage the Ōhau catchment.** As noted above, when the level of Lake Ōhau is above 520.25m, mandatory canal flows of 170 cumecs must occur. When the level of Lake Ōhau is above 520.4m, mandatory canal flows increase to 200 cumecs and water will also begin to flow uncontrolled over the weir, into the Upper Ōhau River, and then into Lake Ruataniwha. Canal water must pass through Ōhau A station before reaching Lake Ruataniwha, while water in the Upper Ōhau River flows directly into Lake Ruataniwha. All water in Lake Ruataniwha must then be generated through both Ōhau B and Ōhau C stations or spilled from the Ruataniwha Spillway into Lake Benmore. Mandatory canal flows were in place:

- from 10 November to 21 November; and
- from 3 December to 18 December.

Spill over the weir into the Upper Ōhau River occurred:

- intermittently and in small volumes from 10 November to 19 November (flows peaked at 26 cumecs – 14 cumecs more than the consented minimum flows in the Upper Ōhau River); and
- from 3 December to 16 December in much greater volumes (flows peaked at over 300 cumecs). These volumes could not be managed by generation at Ōhau B and C stations and therefore spill occurred from the Ruataniwha Spillway between 7 December and 11 December.

17.3 **Spill to manage storage in lakes Pūkaki and Tekapo.** Spill from Lake Pūkaki into Lake Benmore began on 8 December and continued until 31 December. Lake levels increased rapidly – at the start of November the level of Lake Pūkaki was around average for the time of year and at the start of December there was still around 400 GWh of storage headroom in Lake Pūkaki, while Lake Tekapo was sitting at below average levels for the time of year. Lake Tekapo is not controlled by Meridian but the resulting spill from Lake Tekapo must be managed downstream by Meridian. Spill from Lake Tekapo, via Lake George Scott Spillway, to Lake Benmore occurred from 14 December to 31 December.

Meridian's trading and dispatched generation

18 Traders will typically offer [redacted] S9(2)(b)(ii) [redacted] Over the relevant period the key risk faced was obviously the risk of spill. Meridian's traders offered more volume to clear over the period of the allegation as inflows arrived in our catchments.

19 Meridian generally runs its generation plant as a portfolio. Overnight when there is less load, we will often back generation off in Manapōuri and instead generate more from the Waitaki scheme to manage hydrology and pass water through the chain. We typically do this for two reasons:

19.1 To manage Lake Ōhau flows including mandatory canal flows and spill over the weir, or to avoid initiating spill over the weir.

19.2 To help manage the level of smaller storage lakes (Ruataniwha, Benmore, Aviemore, and Waitaki). There are different flows from different stations and these lakes are often left with too much or not

enough storage – too much storage can result in the initiation of new spill in the Waitaki scheme; not enough storage can limit generation on the Waitaki scheme during the next day, including limits to peaking generation.

20 During November and early December (before the significant inflow event), we were regularly generating overnight from the Waitaki scheme in preference to Manapōuri, for both reasons outlined above. For example, from 10 November to 21 November 2019 there were mandatory canal flows from Lake Ōhau as well as some spill over the weir. The Ōhau stations needed to use this water to generate, including overnight, so traders offered S9(2)(b)(ii) [redacted] As can be seen in Figure 2 below, from early December, with the start of the second large inflow event and more widespread and unavoidable spill in the Waitaki catchment, Manapōuri was generating hard right through the nights.

21 We have recreated below in Figure 2 and Figure 3 the Manapōuri and Waitaki offer stacks from the appendices of the allegation letter. Both figures have been marked up to indicate some of the reasons for Meridian's offers.

Figure 2: Marked up Manapōuri offer stacks and generation

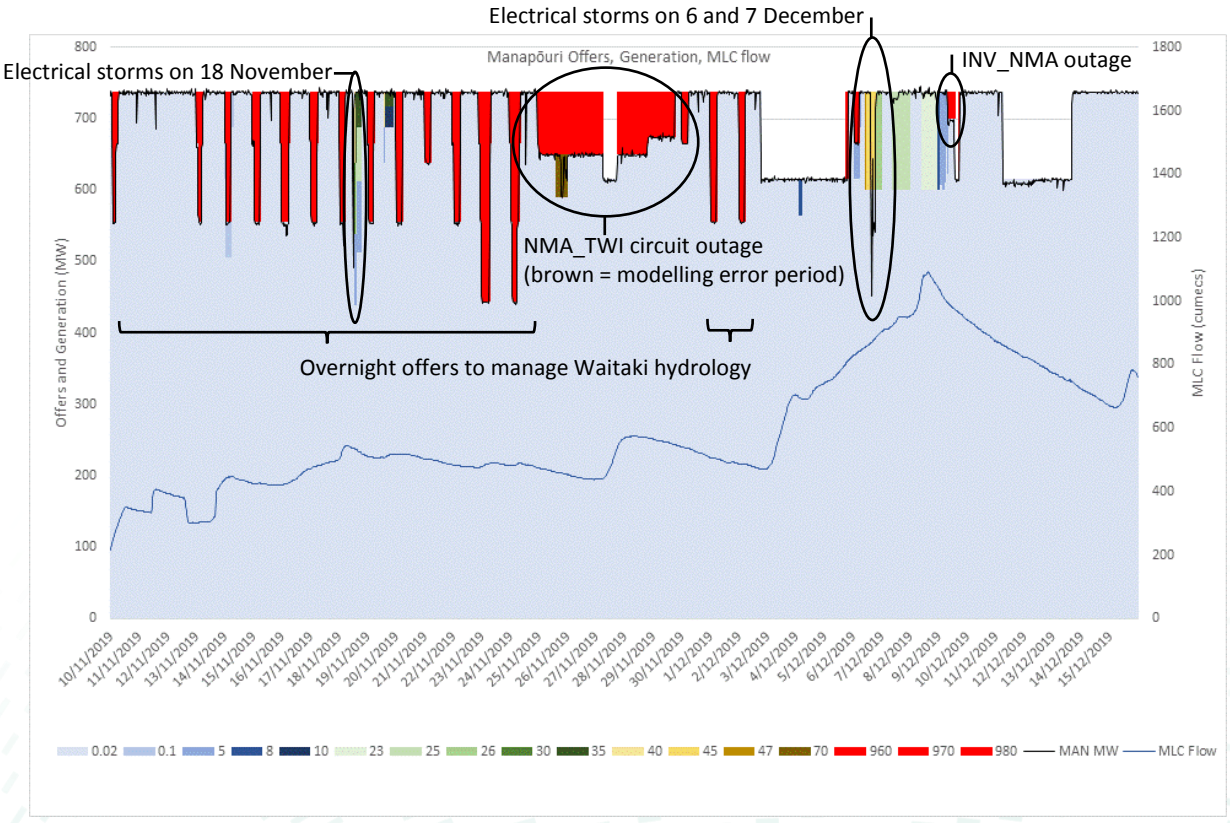
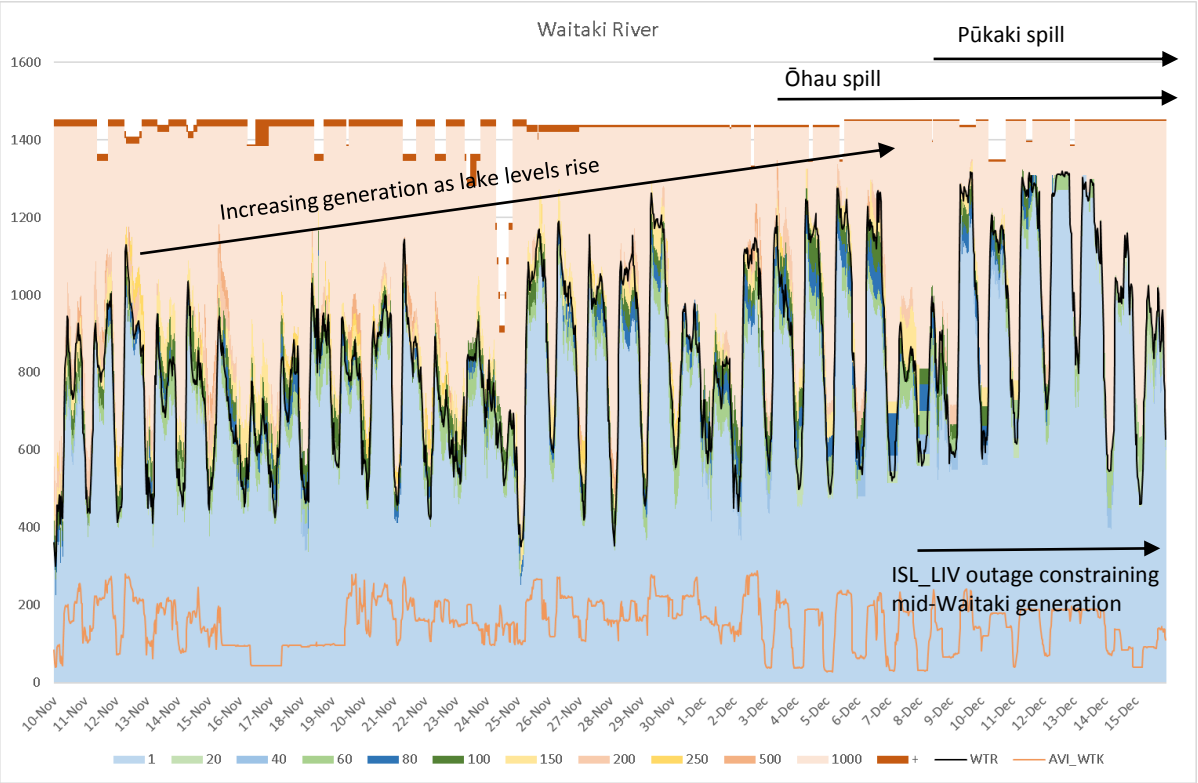


Figure 3: Marked up Waitaki offer stacks and generation



22 The complainants allege that all Meridian and Contact hydro generation from Manapōuri, Clyde, and Roxburgh while spilling should have been offered at $5/MWh. The complainants use vSPD to override offer prices at those locations to $5/MWh and allege that an additional 109 GWh of generation would have been dispatched from these schemes as a result. Later vSPD runs on the Authority's EMI website, are more complete and also factor in Waitaki generation at $5/MWh during Lake Pūkaki spill. The results from this vSPD run show that, had Waitaki, Manpouri and Clutha generation all been offered at $5/MWh, Manapōuri and Clutha generation would have been displaced by Waitaki generation and that between 11 November and 15 December 2019 the market would only absorb approximately 60 GWh of extra hydro generation from Meridian and Contact combined (compared to the 1753 GWh of total Manapōuri, Waitaki, and Clutha generation over the period). In fact, this alternate vSPD run has Meridian generating less than what we did in reality because Manapōuri generation is displaced by Contact generation that is further north and therefore electrically closer to major load centres. Realistically, additional hydro generation from any one of the South Island hydro stations would have largely displaced hydro generation from the others and simply shifted spill to another catchment.

Meridian's understanding of the extent of actual and potential market and operational impact and the rationale for this

23 Clearly, if the relevant counterfactual is multiple generators simultaneously offering at zero or near zero prices then actual and potential market impacts were material. However, for the reasons already given we do not agree that this is the correct counterfactual.

24 We also note the complainants allege that "Meridian's generation business has extracted excess revenue of $38m in the period since 10 November." This ignores the fact that Meridian is vertically integrated. Higher wholesale spot prices do not necessarily result in increased Meridian revenues because Meridian is also a purchaser on the spot market. Meridian's revenue is derived predominantly from our contract book rather than from wholesale spot prices. Whether Meridian was long or short on generation relative to contracts varies by trading period.

Any steps taken to resolve the alleged breach

25 Meridian does not believe there has been a breach. We have therefore not taken any steps to resolve it. We note that by 16 January 2020 spill from Manapōuri Lake Control had reduced to minimum environmental flows.

Any steps taken to prevent the matter reoccurring in the future

26 Meridian does not believe there has been a breach. We have therefore not taken any steps to prevent the matter reoccurring in the future.

Meridian's response to the alleged breach of the HSOTC provisions

The safe harbour provisions in the Code apply to Meridian's trading behaviour

27 Meridian considers that its offers were at all times consistent with a high standard of trading conduct. In particular, during times of spill from 10 November, Meridian's offers fall within the safe harbour provisions in the Code and therefore Meridian is deemed to comply with the clause 13.5A obligation to "ensure that its conduct in relation to offers and reserve offers is consistent with a high standard of trading conduct."

28 The complainants allege that Meridian is in breach of the safe harbour provisions, including as a consequence of the Manapōuri offers resulting in a material increase in the final price at which electricity is supplied (clause 13.5B(1)(c)(i) of the Code) and that Meridian benefitted from an increase in the final price (clause 15.5B(1)(c)(iii)). The allegation also proceeds on the basis that Meridian is "pivotal 100% of the time" such that the safe harbour in clause 13.5B(1)(c) will never apply.

29 Those claims are incorrect. Addressing each of the safe harbour provisions in turn:

29.1 As will be apparent from Figures 2 and 3 above, Meridian made offers in respect of all of its available generating capacity during the relevant trading periods. Meridian therefore complied with clause 13.5B(1)(a) of the Code.

29.2 When Meridian decided to submit or revise an offer, it did so as soon as it could. Meridian therefore complied with clause 13.5B(1)(b) of the Code. In relation to those trading periods between 11 November 2019 and 16 January 2020 when Meridian was not pivotal, this fact, in combination with 29.1 above, means that Meridian fell within the safe harbours.

29.3 In relation to those trading periods between 11 November 2019 and 16 January 2020 when Meridian was pivotal its offers were generally consistent with offers it had made when it was not pivotal. Meridian therefore complied with clause 13.5B(1)(c)(ii) of the Code. We also believe that, in terms of clause 13.5B(1)(c)(i) of the Code, in periods when Meridian was pivotal prices and quantities in Meridian's offers did not result in a material increase in the final price at which electricity was supplied in a trading period at any node at which Meridian was pivotal, compared with the final price at the node in an immediately preceding trading period or other comparable trading period in which Meridian was not pivotal at that node. These facts, in combination with 29.1 and 29.2 above, mean that Meridian also fell within the safe harbours when pivotal.

30 Meridian does not in the course of trading consider or calculate whether it is pivotal. S9(2)(b)(ii) [redacted] Following the allegations, Meridian has undertaken pivotal analysis in respect of the 3168 trading periods from 11 November 2019 to 16 January 2020 (the date that volumes from Manapōuri Lake Control reduced back to minimum environmental flows). The methodology used was to remove all of Meridian's offers from the offer stack and check whether there was enough energy to meet demand both nationally and in the South Island.[6] If 1 MW or more of Meridian's generation was required to meet demand then Meridian was considered pivotal. This methodology aligns with the definition of pivotal in the Code.

31 The analysis found that over the period in question, Meridian was less likely to be pivotal overnight between trading periods 1 to 12 inclusive – 2 percent of the time nationally and 46 percent of the time in the South Island. In the remaining trading periods Meridian was nationally pivotal for 69 percent of trading periods and pivotal in the South Island for 86 percent of trading periods.

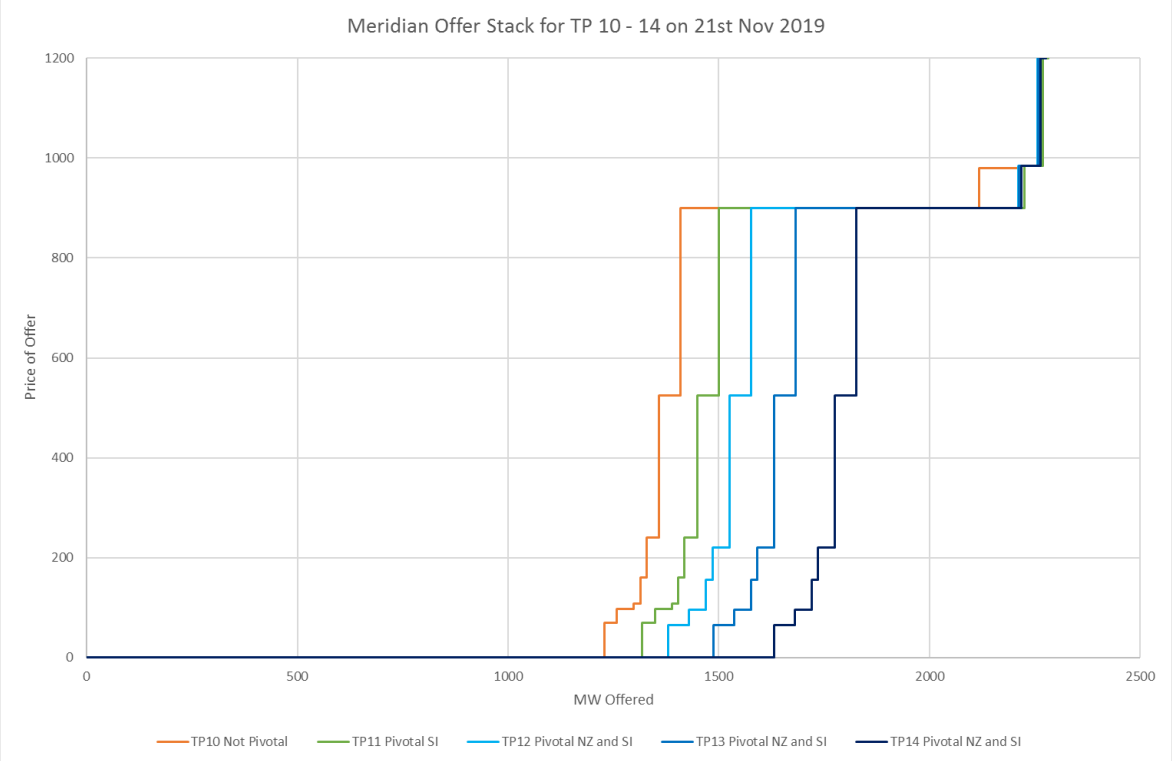
[6] At a national level, if the offer stack with Meridian's offers removed still included enough energy to meet demand plus transmission losses then Meridian was not pivotal. For the South Island, Meridian's offers were removed from the offer stack and remaining offers assessed against demand in each island, factoring in HVDC flows (allowing the HVDC to flow at the SIR HVDC risk offset less the 30 MW modulation risk).

32 To the extent the allegations are linked to trading periods 1 to 12 overnight, these were trading periods in which Meridian was often not pivotal. In trading periods where Meridian was not pivotal, compliance with the two safe harbours in clauses 13.5B(1)(a) and 13.5B(1)(b) of the Code is sufficient to establish that Meridian was making offers consistent with a HSOTC. By Meridian's calculations, we were not pivotal in the majority of overnight trading periods.

33 In trading periods when Meridian was pivotal, compliance with one of the safe harbours in clause 13.5B(1)(c) of the Code is also required for the safe harbours to apply and for Meridian's conduct in relation to those offers to be deemed to be consistent with a HSOTC. Meridian complied with the safe harbour in 13.5B(1)(c)(ii). In particular Meridian's offers when pivotal were generally consistent with offers during non-pivotal periods. We have analysed and compared in detail many of the more than 3000 trading periods between 11 November 2019 and 16 January 2020. That analysis confirms Meridian's offers in periods when it was pivotal were generally consistent with its offers in periods when it was not pivotal. Samples of this analysis appear in figures 4A and 4B below. We can share more with the Authority if that would be useful.

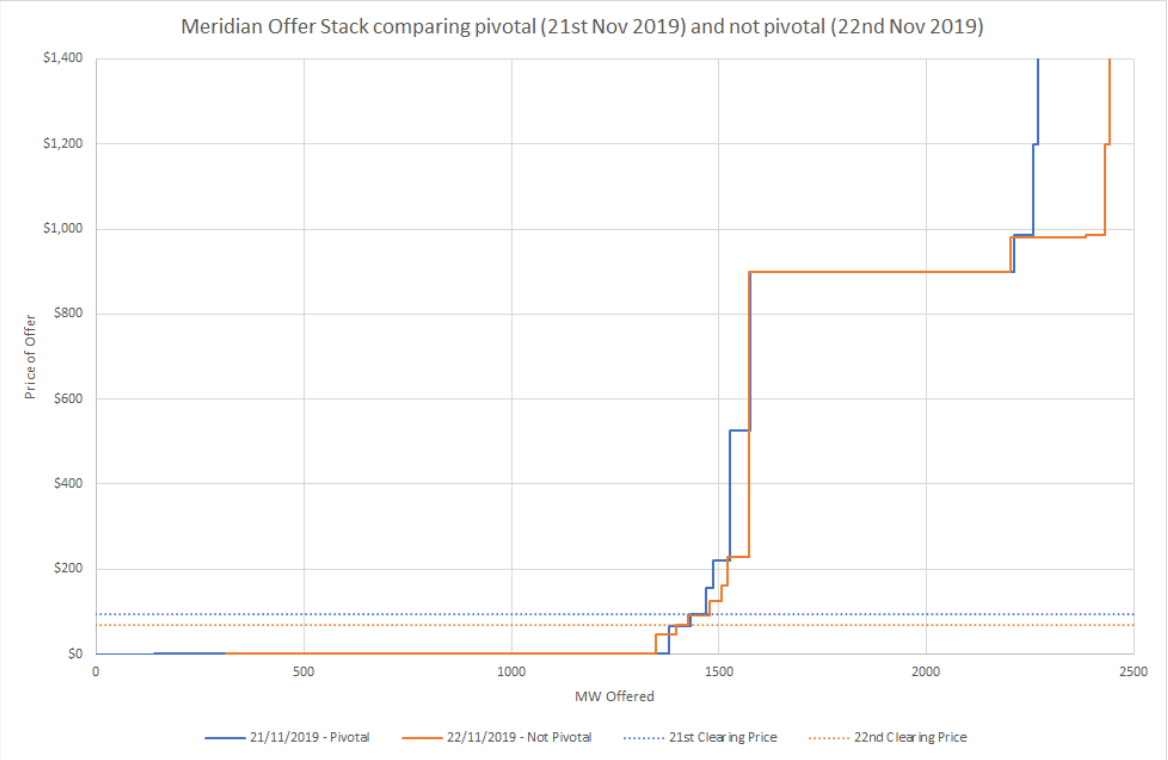
34 Figure 4A compares Meridian's offer stacks for trading periods 10 to 14 on 21 November 2019. This is the period leading into the morning peak. As can be seen, Meridian offered increasingly higher volumes of generation at near zero prices as demand S9(2)(b)(ii) increased. Meridian also moves from being non-pivotal, to being pivotal in the South Island, and then pivotal in both the South Island and New Zealand in the later three trading periods. Meridian's offer stacks are clearly "generally consistent" between pivotal and non-pivotal periods.

Figure 4A: Meridian offer stacks comparing trading periods 10 to 14 on 21 November 2019



35 Figure 4B isolates a specific trading period (trading period 12) on two consecutive days – 21 and 22 November 2019. Meridian was pivotal in trading period 12 on 21 November, while in trading period 12 on 22 November Meridian was not pivotal. Meridian considers the offers made on the pivotal trading period to be "generally consistent" with the offers made on the non-pivotal trading period. There were some minor differences, but these are explained by changing circumstances across the two days. As can be seen, Meridian offered slightly more generation at near zero prices on 21 November. S9(2)(b)(ii) In addition, demand varied by around 70 MW between these two days and this likely caused the difference in clearing price between the two days. None of these factors mean that Meridian's offers were anything other than "generally consistent" between the two trading periods.

Figure 4B: Meridian offer stacks comparing trading period 12 on 21 and 22 November 2019



36 Based on the analysis we have completed we believe Meridian also complied with the safe harbour in clause 13.5B(1)(c)(i). In particular we are confident that prices and quantities in Meridian's offers did not result in a material increase in the final price at which electricity is supplied in a trading period at any node at which Meridian was pivotal, compared with the final price at the node in an immediately preceding trading period or other comparable trading period in which Meridian was not pivotal at that node. We believe the graphs above bear this out and, again, we are happy to share further analysis with the Authority if that would be useful.

Offering prices above SRMC is not a breach of the HSOTC

37 The requirement in clause 13.5A of the Code is that generators must ensure that their conduct in relation to offers and reserve offers is consistent with a HSOTC. In the event the Authority considers that, contrary to the analysis above, Meridian was not within the safe harbours and therefore deemed to comply with the HSOTC standard, the Authority must go on to separately consider whether Meridian's trading conduct was of sufficiently high standard. The Code is clear that merely being outside the safe harbours is not in itself a breach of the HSOTC standard. As outlined above the sole argument put forward by the complainants is that Meridian's conduct did not meet that standard because it did not offer at SRMC.

38 The Code does not provide guidance as to what amounts to a HSOTC. Nowhere does the Code state or imply that the HSOTC standard requires offers to be made at or below SRMC. We consider the argument made by the complainants to the contrary to be misconceived and without foundation. We also do not believe that when the Authority made the Code it would have intended the HSOTC provisions to be interpreted in the way suggested by the complainants. There has never been a requirement for generators to offer generation at SRMC and applying such a requirement would, as noted above, harm the market as generators would be unable to recover their fixed costs and there would thus be no incentive to build new generation, leading to electricity shortfall over time. The suggestion by the complainants that offers in every trading period should be at SRMC but that over a longer period prices might somehow reflect LRMC is illogical. Each year is made up of individual trading periods and if offers in each trading period must be at SRMC then it is unclear how generators would ever recover their fixed costs.

39 Analysis by Dr E Grant Read in *An Economic Perspective on the New Zealand Electricity Market*[7] finds that some degree of deviation from SRMC spot prices is not a major cause for concern. Theoretically, an optimal market design might result in low, SRMC-based prices for extended periods but, in dry years, it would also be optimal to set prices so high, for such long periods, as to be politically (and hence commercially) unsustainable. In some markets, "capacity prices" are added to support generator revenues at times of low prices but in New Zealand's energy only market, it is necessary for spot prices to on average sit above SRMC and at a level which induces sustainable entry. The paper also considers empirical analysis suggesting that "Some deviation from SRMC pricing is likely to be one of the means used to sustain acceptable revenue streams through the long periods of relative surplus expected in a hydro dominated market."[8] In fact, "This market has been designed to operate just like the vast majority of successful markets operating outside the electricity sector, and with similar cost structures, where pricing above SRMC has always been considered absolutely normal."[9] In Dr Read's view, alignment of prices with LRMC entry costs across the spectrum of plant types, is the most important measure of market performance. "Costs in the New Zealand electricity sector have traditionally been dominated by investment costs, rather than fuel costs, and this will become even more true, as the role of thermal generation options recede. So, the key issue must be to provide appropriate LRMC signals to guide investment decisions."[10]

40 Dr Read's reasoning is reflected in previous Authority papers. In the Authority's final decision paper on the UTS of 26 March 2011, the UTS Committee in explaining its reasons for resetting Genesis Energy's offers to $3,000/MWh, acknowledged that although a rational commercial strategy for Genesis Energy's Huntly plant would have been to offer at SRMC, by definition a net pivotal generator is able to determine prices in at least one region and by offering at SRMC, this would in turn undermine the net pivotal generator's ability to demand from purchasers a price for hedge cover in the future that is above SRMC.[11] The UTS Committee also stated that "a time-consistent and stable equilibrium outcome is for the net pivotal generator to offer into the wholesale market for electricity at or near the price of its hedge contracts, i.e. at or near the LRMC of the next best economic alternative. Purchasers would thus be incentivised to seek hedge cover in the future and wholesale electricity process would tend towards the LRMC of the economic alternative to the net pivotal generator".[12]

41 In addition, the UTS Committee stated that "In a situation where there is a willing buyer and a seller, a net pivotal generator should be able to price up to the economic alternative of the buyer, which would approximate the LRMC of a new entrant generation option or the opportunity cost of electricity for consumers (i.e. the price at which demand response occurs)".[13] It is clear from these statements that the Authority does not expect generators to price their offers at SRMC.

42 If an interpretation of the HSOTC provisions was adopted that required generators to offer at SRMC, there may be perverse outcomes. In addition to the lack of investment in new generation already noted, generators would be incentivised to pull low-SRMC generation out of the market. Incentivising this behaviour would not benefit consumers in the long term.

43 In short, Meridian considers its conduct in relation to offers and reserve offers was at all times consistent with a HSOTC.

44 Furthermore, Meridian's offers were only marginal and setting clearing prices in around 33 percent of trading periods, consistent with Meridian's market share of generation. When Meridian offers were marginal, prices were lower on average. As Figure 5 shows, average market prices for the period of the allegations are unremarkable compared to the rest of the 2019 calendar year. Prices were also low compared to prices in other UTS situations or alleged breaches of the HSOTC provisions. In this market context it is difficult to see how Meridian's conduct could be considered in any way unusual, improper, or

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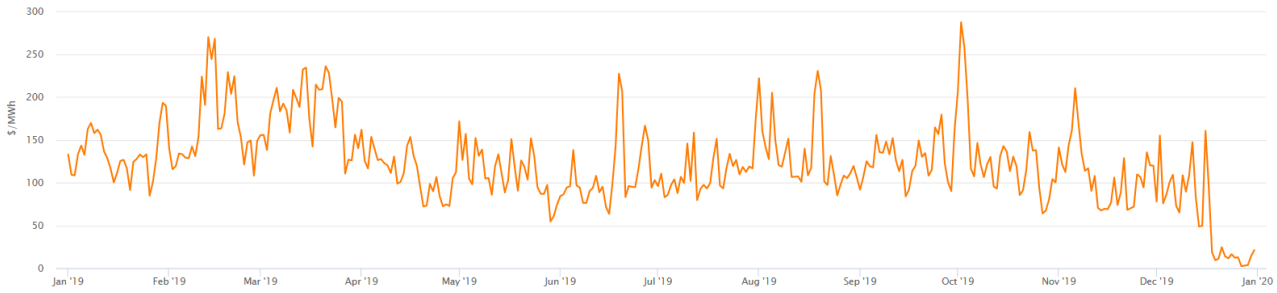
[7] E Grant Read *An Economic Perspective on the New Zealand Electricity Market* 2018.
[8] Ibid, page 6.
[9] Ibid, page 6.
[10] Ibid, page 7.
[11] Electricity Authority, Final decision on the Undesirable Trading Situation of 26 March 2011, and Final decision on actions to correct the Undesirable Trading Situation of 26 March 2011. Decision: 4 July 2011.
[12] Ibid, para 173.
[13] Ibid, para 188.

not of a 'high standard'. It is also difficult in this context to see how the situation over the period of the allegations could be seen as a situation that threatens, or may threaten, confidence in, or the integrity of, the wholesale market.

Figure 5: Average daily wholesale prices for NZ since 1 January 2019



Interpretation of the Authority's statutory objective

45 The complainants refer to legal advice given to the Market Development Advisory Group that says, in interpreting the HSOTC provisions, a court would consider the Authority's statutory objective. The Authority's statutory objective is to "promote competition in, reliable supply by, and the efficient operation of, the electricity industry for the long-term benefit of consumers."

46 The complainants refer to a 2011 paper by the Authority interpreting the term "competition" to mean workable or effective competition.[14] In this paper, the Authority suggests that the strength of competition in a market is indicated by the extent to which a firm can profitably sustain a change in its product or service offering that is unfavourable to the market. It views workable competition as placing pressure on firms to set prices close to their marginal cost to supply.[15] The complainants then assert that, given this view of workable competition, the Authority should interpret offer prices that exceed some measure of SRMC as a breach of the HSOTC provisions. This in our view misunderstands the Authority's statutory objective. The statutory objective charges the Authority to "promote competition"; it does not require it to regulate prices consistent with outcomes from any particular state of competition (perfect, workable, or otherwise). The Authority is to promote competition—rivalry—for the long-term benefit of consumers and it should continue to seek ways of improving the competitive process regardless of its view as to the state of competition in the market.

47 As noted by Sapere in the attached paper, if the Authority was to interpret the HSOTC provisions as requiring offers to reflect SRMC then this would be more akin to the role of the Commerce Commission, under Part 4 of the Commerce Act, in price regulating firms to achieve an outcome consistent with outcomes produced in workably competitive markets.[16] We do not consider this to be consistent with the Authority's statutory objective.

48 In addition to considering the purpose of the Code when interpreting the trading conduct provisions, the legal advice referenced by the complainants also states that they would expect a court to first consider any "external aids to interpretation, particularly documents generated in the development of the trading conduct provision, such as the Authority's consultations papers and supplier submission".[17] In the Authority's consultation paper for the development of the trading conduct provision, it describes the objective of the proposed amendment and states that "the amendment should (a) deter suppliers from raising their prices simply because they are temporarily pivotal in the spot market; (b) allow suppliers to charge prices needed to justify efficient investment in capacity; (c) not create undue compliance costs".[18] Interpreting the HSOTC provisions as requiring offers to reflect SRMC would not allow suppliers to charge prices needed to justify efficient investment in capacity.

[14] Electricity Authority *Interpretation of the Authority's statutory objective* 2011, para A.15.
[15] Ibid, para A.22.
[16] Sapere Research Group *Economic review of Haast Energy claim that Meridian has breached the HSOTC rule and given rise to a UTS* February 2020, paras 35 to 38.
[17] Bell Gully, *Interpretation of the Trading Conduct Provisions: Summary of interpretative aids* 27 August 2018.
[18] Electricity Authority *Improving the efficiency of prices in pivotal supplier situations: Consultation paper* 18 February 2014.

Meridian's response to the alleged UTS

49 The complainants say that a UTS arises because of the "nature and scale of the HSOTC breach – specifically the manipulative trading activity". Accordingly, if there was no HSOTC breach then, on the complainants' logic, there was no UTS. Meridian also denies that its conduct involved "manipulative trading activity". As far as we can tell the complainants have not explained or in any way substantiated the allegation of price manipulation.

The Authority's jurisdiction to investigate a UTS

50 Although the complainants claim that Meridian's conduct gave rise to a UTS from 11 November 2019, Meridian notes that under clause 5.1A of the Code, the Authority "must not commence an investigation if more than 10 business days have passed since the situation, which the Authority suspects or anticipates may be an undesirable trading situation, occurred". The complainants complained to the Authority on 12 December 2019. Any conduct that occurred prior to 27 November 2019 can therefore not be investigated as an undesirable trading situation.[19]

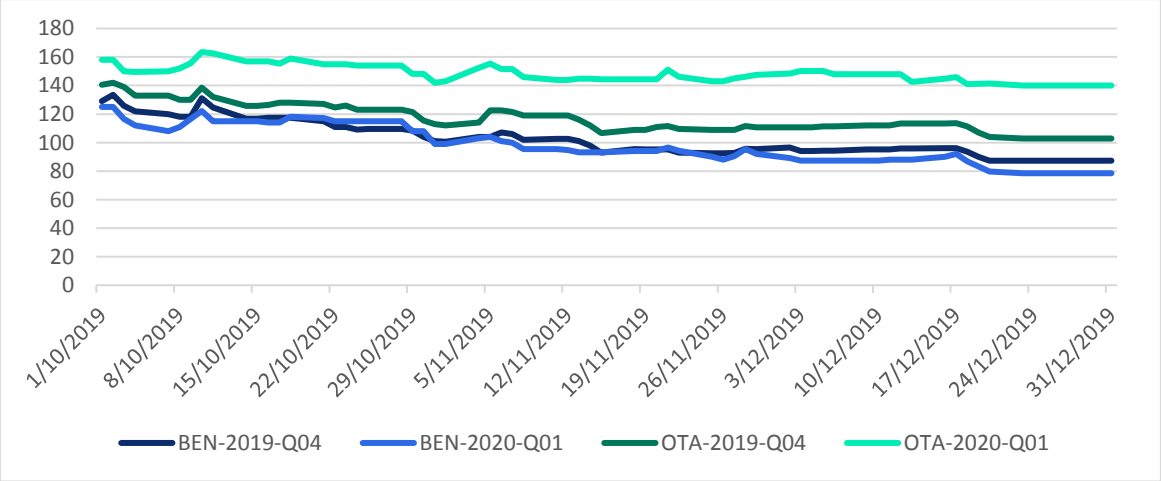
No evidence provided of a UTS

51 For the events complained of to constitute a UTS, they must be a situation "that threatens, or may threaten, confidence in, or the integrity of, the wholesale market" under clause 1.1(a) of the Code. The complainants do not provide any evidence to show how Meridian's conduct during the relevant trading met that test. Instead, the complainants claim that the nature and the scale of the alleged HSOTC breach also qualifies as a UTS. The complainants do not articulate how confidence in, or in the integrity of, the wholesale market was threatened. In Meridian's view it was not.

52 In previous UTS investigations, to determine whether confidence in, or the integrity of, the wholesale market may have been threatened, the Authority has considered whether there had been an increase in prudential requirements or material change in the trading of risk management products such as FTRs and ASX New Zealand Electricity Futures.[20]

53 The ASX operated normally throughout the period of the allegations with participation consistent with what would be expected. Figure 6 below shows that ASX prices did not suddenly change due to the start of South Island spill (as might have been be expected if there was a UTS).

Figure 6: ASX closing prices BEN and OTA, Q4 2019 and Q1 2020



[19] The time limit was introduced on 18 July 2013 as the Authority agreed that "an open-ended time limit on the republication of final prices is undesirable from the perspective of promoting market certainty" and that "the Authority considers that it is more appropriate for the time limit on initiating a UTS investigation to start from the date that an alleged UTS commenced. This would mean that the UTS provisions could not be triggered if a UTS was first discovered after the time limit expired. While a scenario of this type cannot entirely be ruled out, it appears very unlikely that a situation which threatens or may threaten confidence in, or the integrity of, the wholesale market, could go unnoticed for a long period". See Electricity Authority *Consultation Paper: Review of the Undesirable Trading Situation provisions in the Code* 18 March 2013 at para 3.1.36 and 3.1.39.

[20] Electricity Authority *The Authority's decision on claim of an undesirable trading situation, Electric Kiwi's claim in relation to trading periods 35-40 on 2 June 2016, Final decision* 6 July 2016, para 7.1.

54 Meridian has considered FTR prices for Benmore and Haywards and Invercargill and Benmore options before and after the period of the allegations. We consider these to be within a normal level of variability. FTR pricing movements can reflect a change in opinion in the market of the likely flow or constraint between two nodes and the general price difference.

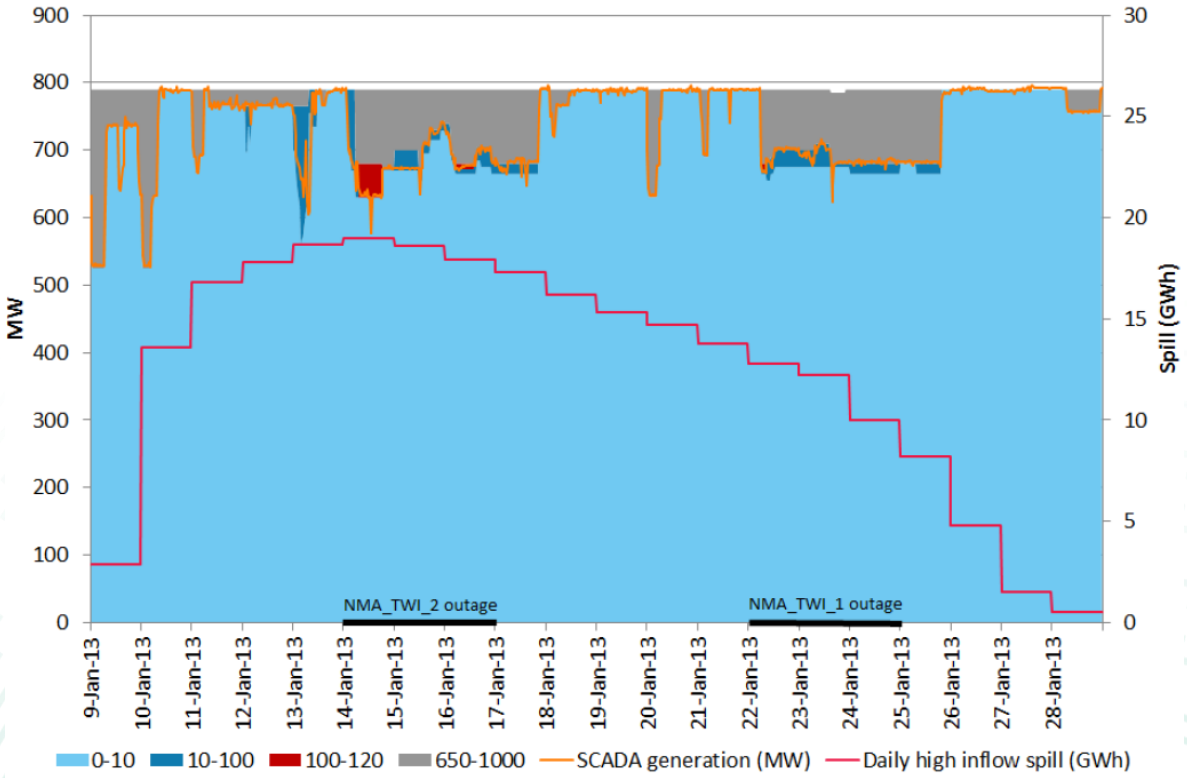
55 Meridian considers there to be no evidence indicating that prudential requirements over the relevant trading periods were inconsistent with normal market operations (prudential requirements have decreased between October and the period of the allegations as would be expected with reducing spot prices). The behaviour observed in the FTR market over the period of the allegations appears broadly consistent with earlier in the year, and to Meridian's knowledge, there has been no observable impact on the ASX outside of what might reasonably be expected on the back of a significant inflow event.

56 Given the lack of observable impact other than what would reasonably be expected in a major inflow event, there is no evidence that Meridian's offers while spilling, threatened or may threaten, confidence in, or the integrity of, the wholesale market.

Meridian's trading behaviour during the relevant period was not unusual

57 Meridian's trading behaviour was consistent with its own standard practice during times of spill and for that matter consistent with what we understand to be the practice of other hydro generators. No New Zealand hydro operator to our knowledge follows a practice of reducing all offers to $0/MWh (plus some allowance for operating and maintenance costs), at times of spill. Meridian did not reduce all offers in this way during an earlier period of spill in June 2019. This practice has not to our knowledge ever previously been suggested to amount to a UTS and it would be a surprising and un-signalled extension of the UTS provisions for them to be found to require hydro generators to act differently. In fact, a 2013 report by the Authority noted very similar offers made for Manapōuri generation in January 2013 when the same NMA_TWI transmission outage was observed during a period of spill.[21] Figure 8 below is an extract from that report. No UTS was found, or as far as we know even considered, by the Authority in respect of these 2013 offers.

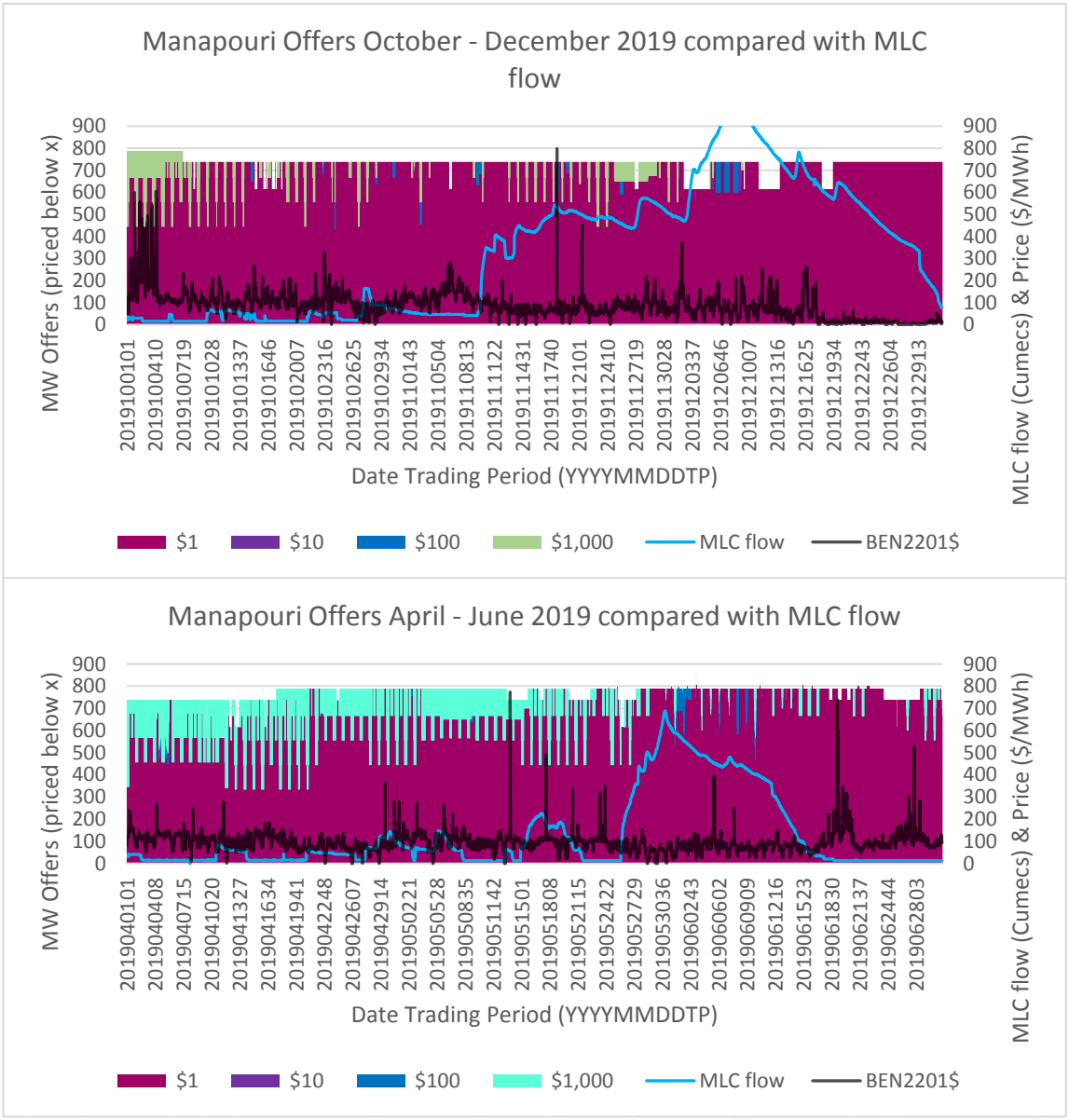
Figure 8: Electricity Authority analysis of January 2013 Manapouri offers, generation and spill



[21] Electricity Authority *Increased electricity wholesale spot and hedge prices - February 2013 to March 2013* para 10.5 and Figure 28, in which the Authority observed Manapōuri clearing offers of up to $63/MWh and non-clearing offers of up to $1000 while simultaneously spilling.

58 Figure 9 below shows two sets of Meridian offer stacks for Manapōuri, the first during the period of the allegations and immediately prior, and the second from April to June 2019 when we were also spilling water from Manapōuri Lake Control. As can be seen the offer behaviour is generally consistent and unremarkable.

Figure 9: Comparing Manapōuri offers from a previous period of spill



Next steps

59 Meridian considers its conduct at all times during the relevant trading periods to have been appropriate and reasonable, within the safe harbours in clause 13.5B of the Code, and consistent with the HSOTC provisions in clause 13.5A of the Code. Meridian also disagrees that actions during the relevant trading periods give rise to a UTS.

60 We are happy to provide any further information required by the Authority to resolve the allegations. Please let us know if we can be of further assistance.

Yours sincerely

Chris Ewers
General Manager, Wholesale

Economic review of Haast Energy claim that Meridian has breached the HSOTC rule and given rise to a UTS

Kieran Murray, Toby Stevenson

13 February 2020

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Executive summary

1. Haast Energy Trading (Haast Energy) claims that Meridian's behaviour—in offering Manapouri at a price above Haast Energy's estimate of the opportunity cost of water—was a form of 'market manipulation' that artificially raised prices. It further says that Meridian has misused market power to offer generation at prices above workably competitive levels.

2. An 'artificial price', or market manipulation, does not arise simply because a party attempts to profit by selling above short-run marginal cost (SRMC); traders attempting to sell at the highest price they can or 'holding out' for a more advantageous price represents normal activity in all markets. There is no evidence in the Haast Energy complaint that prices in the wholesale market were established other than by the forces of supply and demand; prices were not manipulated and are not artificial as those terms are ordinarily understood and applied in studies of market behaviour.

3. The test for assessing whether market power has been taken advantage of is whether an entity would have behaved the same way if it did not have substantial market power but was otherwise in similar circumstances. Meridian has demonstrated to us that it made generally consistent offers in periods it was not pivotal as it made in periods it was pivotal during the period identified by Haast Energy. As it made the same offers in periods in which it was pivotal as it made in periods it was not pivotal (when it did not have local market power), its offers cannot amount to taking advantage of market power.

4. During the period of the claimed breach Meridian's behaviour did not fall below a high standard of trading conduct:

    - Meridian's offers were not 'artificial' and reflected the terms on which it was willing to generate.
    - Meridian's offers were generally consistent between pivotal and non-pivotal periods in the same market conditions and therefore could not be a misuse of market power.
    - Settled prices were consistent with prices that would be negotiated bilaterally as indicated by contract prices.

5. Haast Energy's claim, if followed to its natural conclusion, would lead to the point where offer prices would have to meet the Authority's view of the value of generation for each price band for each generation unit. Haast Energy is inviting the Authority to impose economic regulation, or price control, on Meridian. A change in the rules to give the Authority the ability to determine what offer prices should be, and for those to be judged against SRMC, would be a significant change to the Authority's role and a fundamental change in the design of the market. The price discovery role of the market would be replaced by economic regulation or price control.

Introduction

6. Haast Energy claims that Meridian (along with Contact Energy) has breached the High Standard of Trading Conduct (HSOTC) provision of the Electricity Code and that its conduct is manipulative thereby qualifying as an Undesirable Trading Situation (UTS) under the Code (Anderson, 2019). We have been asked to provide an independent economic assessment of the claims against Meridian.

7. Haast Energy claims that:

   - The Authority's statutory objective requires it to assess whether prices are consistent with a workably competitive market standard (Anderson, 2019, p. 9).
   - In the short-run, offer prices in a workably competitive market would reflect SRMC and, in the case of hydro-electricity generation, SRMC is determined by the opportunity cost of water (Anderson, 2019, p. 10).
   - During periods of spill, the opportunity cost of water is at or close to nil (Anderson, 2019, p. 5).
   - Meridian offered Manapouri above its SRMC, as measured by the opportunity cost of water (Anderson, 2019, p. 11).
   - Meridian's conduct is a form of market manipulation and had an improper purpose (Anderson, 2019, p. 12).
   - The duration and extent of this claimed market manipulation constitutes a UTS (Anderson, 2019, p. 12).

8. In reviewing these claims, we structure our report as follows:

   - Section one describes the test provided in economics for analysing claimed breaches of standards such as the HSOTC and the UTS and observes that long-standing commodity and financial markets apply interpretations of equivalent rules consistent with this economic test.
   - Section two explains how Haast Energy would have the Authority expand the HSOTC and UTS provisions beyond the rules required for efficient trading to introduce a form of price control not specified in the Code. It outlines the broader implications of the market design, in effect, sought by Haast Energy and observes that elements that would be necessary to support such a market have not been implemented in New Zealand.

Economic test of HSOTC and UTS

They are separate rules but both are standards

9. Haast Energy claims that Meridian's behaviour—in offering Manapouri at a price above Haast Energy's estimate of the opportunity cost of water—is so clearly a breach of the HSOTC rule and "the nature and scale of the HSOTC breach" is so egregious that it constitutes a UTS. These rules are not hierarchical. They serve different purposes even though there may be some common elements at play.

10. Most rules in the Code express precisely what a participant can and cannot do. Precise rules are efficient where it is possible to stipulate required behaviour in advance. The HSOTC and UTS rules are expressed in general or imprecise terms. Appendix A sets out the HSOTC and UTS rules for ease of reference.

11. Economists refer to imprecise rules as "standards" (Kaplow, 1992, p. 557).[1] Standards are necessary where it is not practical to specify behaviour in advance, or where the application of the rule may depend on the circumstances, and the interpreting body must determine after the event whether the behaviour met the intent of the rule (Cooter & Ulen, 2007, p. 359). For example, the road code prohibits dangerous driving without attempting to identify all possible forms of driving dangerously.

12. The UTS rule provides 6 examples of what the Authority may consider to constitute an undesirable trading situation; these examples include manipulation. Examples are not provided for the HSOTC rule. The definition of what constitutes a HSOTC in the New Zealand code remains unclear and problematic. The review accompanying the 2 June 2016 breach claim does not provide any guidance on how the HSOTC standard is to be applied (Electricity Authority, 2016).

13. The Market Development Advisory Group (MDAG) is working on the development of the HSOTC rule as the Wholesale Advisory Group (WAG) had before them. MDAG's most recent problem definition notes that the requirement for the provision is unclear and the basis for assessing whether conduct is undesirable remains unclear (MDAG, 19 June 2019). The problem definition includes:

    - The "universals" (core) of HSOTC-type provisions are generally market manipulation and information asymmetry.

      …
    - The trading conduct provisions were originally intended to focus on preventing abuse of pivotal positions but this was subsequently expanded to other unspecified unwanted behaviours.

[1] Philosophers often use the term "principles" to refer to imprecise rules.

14. Haast Energy asserts "the high South Island prices, just like for 2 June 2016, was the result of trading behaviour that was inconsistent with the Authority's statutory objective". The HSOTC rule doesn't require an individual generator's behaviour to be consistent with the Authority's statutory objective. A generator must exercise a high standard of trading conduct and the test for that standard remains undefined.

Economic test for interpreting standards

15. Economic analysis provides a simple test for interpreting standards or imputing undefined terms in market rules. Professor Cooter, of Berkeley University, phrases the test as follows: *"Impute the terms to the contract that the parties would have agreed to if they had bargained over all the relevant risks"* (Cooter & Ulen, 2007, p. p 221). In his influential book, *Economic Analysis of Law*, Judge Richard Posner summarised this economic approach as follows (Posner, 1992, pp. 252-53):

> And both tort and contract problems can be framed as problems in the definition of property rights … The definition of property rights can itself be viewed as a process of figuring out what measures the parties would agree to, if transaction costs weren't prohibitive.

16. Hence, a broad standard, such as the HSOTC and UTS rules, can be interpreted by figuring out what measures the parties would have agreed to bilaterally had circumstances allowed for those negotiations.[2] No entity would, for instance, willingly transact on a market where they might be subject to fraud, or be manipulated, or pay prices that are artificial in the sense of being created by forces other than supply and demand.

17. It follows that HSOTC and UTS type rules are ubiquitous in organised markets because they protect the integrity of the price discovery process; they are a component of the rules that intend to give those who trade on the exchange confidence in the reliability of the transactions executed on the market (Telser & Higinbotham, 1977, p. 969). As a standard, these rules typically do not provide a definitive test, but the literature and the Courts (at least, the United States cases) refer to manipulation as capturing behaviour that intentionally creates an artificial price by forces other than supply and demand (Hatch & Mahlum, 2011).

18. Haast Energy adopts the language from this literature and claims a breach of the HSOTC rule on the basis that "Meridian's conduct was a form of market manipulation (artificially raising prices)".

[2] This concept of evaluating outcomes against outcomes that might result from a willing and informed buyer transacting with a willing and informed seller underpins other standards, for example, the IAS 39 in accounting for hedges.

Prices were not artificial

19. An 'artificial price', or market manipulation, does not arise simply because a party attempts to profit by selling above short-run marginal cost (SRMC); traders attempting to sell at the highest price they can or 'holding out' for a more advantageous price represents normal activity in all markets (Fiedman, 1990, p. 30). A price that is above SRMC is not artificial in an economic sense if it reflects the forces of supply and demand—the prices a seller is willing to sell at and the price a buyer is willing to buy at—as the integrity of the price discovery process is not damaged.

20. Returning to the economic test outlined above, if bilateral negotiations were to replace the market rules (in this case, the Code), market participants would still aim to strike prices between SRMC and LRMC as a matter of course. Given the workings of the market, capacity may also be offered above LRMC and, on occasion set the market price. Simplistic measures of offer prices against supplier costs are therefore unlikely to isolate destructive market manipulation. It would make little economic sense, for example, for offers of wheat futures on the Chicago Board of Trade to be assessed against the cost of fuel in harvesting grain or offer prices on the London FTSE to be assessed against the holding costs of shares. These long-standing markets—the Chicago Board of Trade has operated since 1848—thrive because they provide efficient platforms for price discovery, and not by regulating offers against some view of cost.

21. There is no evidence in the Haast complaint that prices in the wholesale market were established other than by the forces of supply and demand; prices were not manipulated and are not artificial as those terms are applied in studies of market behaviour.

No taking advantage of market power

22. In addition to picking up the language of market conduct (e.g., manipulation), Haast Energy also refers to competition analysis and argues that:

> The fact the 'opportunity cost' or water value is zero when water is being spilt makes it straightforward to compare the generator's offer prices against SRMC to determine whether the generator has **mis-used market power** to offer generation above workably competitive market levels and raise spot prices (emphasis added)

23. Effectively, Haast Energy conflates the existence of any, even temporary, market power, or being pivotal, with the question of whether an entity has taken advantage of that state. The test they would apply is whether an offer price is above SRMC.

24. The HSOTC rule was originally conceived to focus primarily on the specific circumstances where a generator is 'pivotal' and takes advantage of that position. In this respect it is analogous to the current test for taking advantage of market power. The Supreme Court has established the test for assessing whether an entity has taken advantage of market power.

25. That current test is whether an entity would have behaved the same way if it did not have substantial market power but was otherwise in similar circumstances (Commerce Commission v Telecom Corp of New Zealand, 2010). This test is referred to as the "counterfactual test". The intuition behind this test is straightforward; if an entity without market power, but otherwise in the same circumstances, would have behaved in the same way then that action cannot amount to a taking advantage of market power. There are clear parallels in the language of the HSOTC Rule, and the same logic holds in assessing whether an entity in a pivotal situation took advantage of its pivotal situation.

26. Meridian has demonstrated to us that it made generally consistent offers in periods it was not pivotal as it made in periods it was pivotal during the period identified by Haast Energy. As it made the same offers in periods in which it was pivotal as it made in periods it was not pivotal, its offers cannot amount to a taking advantage of a pivotal position.

Meridian offers were consistent with HSOTC

27. During the period of the claimed breach Meridian's behaviour did not fall below a high standard of trading conduct:

    - Meridian's offers were not 'artificial' and reflected the terms on which it was willing to generate.
    - Meridian's offers were generally consistent between pivotal and non-pivotal periods in the same market conditions and therefore could not be a misuse of market power.
    - Settled prices were consistent with prices that would be negotiated bilaterally as indicated by contract prices.

Haast Energy seeks price control

Complaint not grounded in Authority's approach

28. Haast Energy's complaint is that the Authority should intervene and require Meridian to offer generation output from Manapouri on terms different from those Meridian has been willing to offer that supply to the market; specifically to require Meridian to set its offers on the basis of some externally determined, with the benefit of hindsight, view of the opportunity cost of water. Haast Energy is inviting the Authority to impose economic regulation, or price control, on Meridian.

29. This invitation goes beyond any workstream endorsed by the Authority. The Authority CEO wrote to the Wholesale Advisory Group in 2013 advising them of the board's view that ideally prices in a pivotal supplier situation would settle at a level just below the short run marginal cost of the next best alternative. That statement doesn't infer that where the market doesn't settle at such a level a generator's offer constitutes trading conduct below a high standard. If this statement were binding any analysis of a generator's offers would include assessing the SRMC of all other offers including the next best alternative which may be a thermal peaking plant.

30. We also note that none of the 17 provisions in the Market Development Advisory Group's problem definition make any reference to plant operating costs including either SRMC or LRMC (MDAG, 19 June 2019).

Misapplication of purpose statement

31. To support its claim, Haast Energy constructs its interpretation of the Code by referring to a legal summary slide provided to the MDAG that in interpreting the trading conduct provisions a court would consider the Authority's statutory objective (Anderson, 2019, p. 9). The Authority's statutory objective requires it to "promote competition".

32. Haast Energy also refers to a 2011 paper by the Authority interpreting the term "competition" to mean workable or effective competition (Electricity Authority, 2011, p. A.15). In this paper, the Authority suggests that the strength of competition in a market is indicated by the extent to which a firm can profitably sustain a change in its product or service offering that is unfavourable to the market (Electricity Authority, 2011, p. A.16). It views workable competition as placing pressure on firms to set prices close to their marginal cost to supply (Electricity Authority, 2011, p. A.22).

33. Haast Energy then assert that, given this view of workable competition, the Authority should interpret offer prices that exceed some measure of marginal cost as a breach of the HSOTC, and a sustained set of offers higher than marginal cost as a UTS. This assertion is not grounded in accepted interpretations of manipulation or artificial prices, analogous tests for the misuse of market power, nor the economic tests for the efficient interpretation of standards, as discussed above.

34. The statutory objective charges the Authority to "promote competition"; it does not require it to regulate prices consistent with outcomes from any particular state of competition (workable or otherwise). The Authority is to promote competition—rivalry—for the long-term benefit of consumers and it should continue to seek ways of improving the competitive process regardless of its view as to the state of competition in the market—for example, by amending the transmission pricing methodology to remove a bias against generation investment in the South Island. It is the role of the Commerce Commission, under Part 4 of the Commerce Act, to price regulate firms consistent with outcomes produced in workably competitive markets.

Price regulation is no simple task

35. If the HSOTC was to be applied as promoted by Haast Energy's claim the Authority would determine what generator offers should be under all circumstances. The resulting economic regulation, or price control would be a massive departure from the current market design and current rule book; implementation would not be a trivial task.

36. Pricing regulation to achieve outcomes consistent with workably competitive markets is a complex task requiring detailed rules, as evidenced by the Input Methodologies developed by the Commerce Commission for regulating the revenue of network companies. Haast Energy would impose on the Authority a more onerous task than Parliament required of the Commerce Commission, as Haast Energy would have the Authority assess at a granular level each offer by each generator for each plant for each trading period against some notion of marginal cost. The Commerce Commission, by contrast, has the comparably simple task of assessing annual revenue against aggregate costs.[3]

37. If it were the intent of the HSOTC and UTS rules to regulate prices in this way, a much greater degree of detail would be needed. The Authority would need to specify the limits of its intervention as these limits are not evident from the interpretation of HSOTC sought by Haast Energy. The Authority would need to concern itself, not just with the use of hydro resources, but whether generation from other fuels—thermal, geothermal, wind, sunshine—were being offered to reflect marginal cost and were being used to their full availability.

38. If it were to apply the Haast Energy interpretation consistently (that is, to both supply and demand), the Authority may also need to consider situations where demand (e.g. interruptible load) was not reduced in circumstances where the Authority estimates the benefit of additional electricity consumption was less than the marginal cost of supply.

[3] We note that the Authority may have assessed at a granular level each offer by each generator for each plant for each trading period on a case-by-case basis to assess whether a UTS has occurred but those assessments were undertaken in response to an investigation to understand trading behaviour and is a much more limited exercise than assessing an obligation to price against marginal cost.

Marginal cost offers and capacity payments

39. There are of course market designs that require participants to offer at marginal cost. The original, and since abandoned, market in the United Kingdom required generators to submit offers based on operating costs. The market design attempted to externalise what had previously been internalised 'least cost' models operated by the former monopoly supplier. These engineering optimisation models provide no form of price discovery, and hence no signals for efficient investment and operation.

40. For reasons well understood in New Zealand, markets that require offers to reflect some notion of cost also provide generators with additional capacity payments to maintain a centrally determined level of generation capacity. Such a fundamental change to market design cannot 'evolve' out of a response to Meridian's offer practices when it is pivotal as is Haast Energy's request in the current complaint. If the Authority were to consider such a fundamental change it should be in the context of a broad strategic review of how it would deliver on its statutory objective.

References

Anderson, P. (2019, December 12). Reporting of Contact and Meridian's breaches of the High Standard of Trading Conduct requirements and Undesirable Trading Situation. *Letter to the Electricity Authority*. Haast Energy Trading.

Commerce Commission v Telecom Corp of New Zealand, 111 (New Zealand Supreme Court 2010).

Cooter, R., & Ulen, T. (2007). *Law and Economics.* University of Illinois, 5th ed.

Electricity Authority. (2016). *High Prices on 2 June 2016: Market Performance Review.* Wellington.

Electricity Authority. (2011). *Interpretation of the Authority's statutory objective.* Wellington.

Fiedman, R. (1990). Stalking the squeeze: understanding commodities market manipulation. *Michigan Law Review Vol 89: 30*.

Hatch, T. B., & Mahlum, T. C. (2011). Beyond Supply & Demand: Manipulation in the Commodities. *Bloomberg Law Reports*.

Kaplow, L. (1992). Rules Versus Standards: An Economic Analysis. *Duke L. J. 42*.

MDAG,. (2019). Review of Spot Market Trading Conduct Provisions Term Sheet, 19 June 2019

Posner, R. (1992). *Economic Analysis of Law* . Bosto: Little Brown, 4th ed.

Telser, L. G., & Higinbotham, H. N. (1977). Organized Futures Markets: Costs and Benefits. *Journal of Political Economy 85, No 5*.

Appendix A: UTS and HSOTC

41. The definition of UTS, clause 1.1 of the Code

undesirable trading situation means any situation—

(a) that threatens, or may threaten, confidence in, or the integrity of, the wholesale market; and

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

42. The UTS provision, clause 5.1 of the Code:

(1) If the Authority suspects or anticipates the development, or possible development, of an undesirable trading situation, the Authority may investigate the matter.

(2) The following are examples of what the Authority may consider to constitute an undesirable trading situation:

(a) manipulative or attempted manipulative trading activity:

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

(c) unwarranted speculation or an undesirable practice:

(d) material breach of any law:

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

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

(3) To avoid doubt,—

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

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

43. The HSOTC provision, clause 13.5A:

(1) Each generator and ancillary service agent must ensure that its conduct in relation to offers and reserve offers is consistent with a high standard of trading conduct.

(2) Subclause (1) applies when—

(a) a generator submits or revises an offer; or

(b) an ancillary service agent submits or revises a reserve offer.

44. The safe harbour provisions, clause 13.5B

(1) A generator complies with clause 13.5A if—

(a) the generator makes offers in respect of all of its generating capacity that is able to operate in a trading period; and

(b) when the generator decides to submit or revise an offer, it does so as soon as it can; and

(c) in the case of a generator that is pivotal—

(i) prices and quantities in the generator's offers do not result in a material increase in the final price at which electricity is supplied in a trading period at any node at which the generator is pivotal, compared with the final price at the node in an immediately preceding trading period or other comparable trading period in which the generator is not pivotal at that node; or

(ii) the generator's offers are generally consistent with offers it has made when it has not been pivotal; or

(iii) the generator does not benefit financially from an increase in the final price at which electricity is supplied in a trading period at a node at which the generator is pivotal.

(d) (2) A generator does not breach clause 13.5A only because the generator does not comply with subclause (1).

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NOTICE UNDER REGULATION 16 OF THE ELECTRICITY INDUSTRY (ENFORCEMENT) REGULATIONS 2010

Date:	12 August 2020
Addressee:	Meridian Energy Limited
Subject:	Meridian is alleged to have breached the high standard of trading conduct with its offers for its Manapouri and Waitaki power schemes.

Investigator: Peter Wakefield, Senior Investigator, peter.wakefield@ea.govt.nz (appointed investigator under regulation 12 of the Electricity Industry (Enforcement) Regulations 2010 (Regulations)).

Notifying industry participant:

Haast Energy Trading Limited, Ecotricity Limited Partnership, Switch Utilities Limited (Vocus), Electric Kiwi Limited, Flick Energy Limited, Oji Fibre Solutions (NZ) Limited, and Pulse Energy Alliance LP (the Complainants)

Clause allegedly breached:

Clause 13.5A. Clause 13.5A requires a generator to ensure that its trading conduct in relation to offers and reserve offers is consistent with a high standard of trading conduct.

Circumstances of alleged breaches:

On 12 December 2019, the Complainants allege the breaches occurred, on 10 November 2019 and were ongoing, when Meridian was spilling water at its South Island power schemes.

The Complainants allege:

"The spilling of water means the 'opportunity cost' or value of water is zero during the relevant trading periods and the short-run marginal cost (SRMC) of generating electricity at Manapouri is near zero.

Meridian has offered in tranches of Manapouri hydro generation at well above its SRMC even though it is spilling water at the same time. It was able to do this by misusing its market power. For example:

- From 13 November to 9 December generation of 100MW to 200MW+ at Manapouri was frequently made available only at prices above $450 [per MWh] during off-peak periods, and from 6 December water has also been priced up during peak periods.

- In the same period, Meridian has exercised its market power through actively managing its Waitaki offers prior to gate closure to ensure overnight Benmore prices are maintained in a $50 to $70 [per MWh] range".

From 10 November 2019 to 16 January 2020 Meridian was spilling water for approximately 3,218 trading periods.

Date and time of alleged breaches:

- Between 10 November 2019 and 16 January 2020

Please note, under regulation 16 of the Regulations, you are obliged to respond to this allegation, in writing, to the investigator within 10 working days of receipt of this notice (unless the investigator allows, in writing, a longer period).

Please provide your response by return email to the investigator.

Include the following in your response:

Whether you believe you have breached the Code

Whether there is another provision you consider more accurately describes the nature of the event

A full explanation of the circumstances surrounding the alleged breaches

Identification of any information provided in your response that you consider confidential and that should not be included in the investigator's report under regulation 19 of the Regulations (regulation 15(2) of the Regulations).

Peter Wakefield

From: Peter Wakefield
Sent: Thursday, 20 August 2020 4:16 PM
To: Alicia Rosevear
Cc: jason.woolley@meridianenergy.co.nz; sam.fleming@meridianenergy.co.nz; Simone O'Loughlin
Subject: RE: Notice of Investigation reference 1912MERI2

Hi Alicia

Yes, an extension to 23 September 2020 to respond to the notice of investigation is allowed.

Regards

Peter Wakefield
Senior Investigator

DDI: +64 4 460 8864
Mob: +64 21 392 715
Fax: +64 4 460 8879
Email: peter.wakefield@ea.govt.nz

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New Zealand
www.ea.govt.nz

From: Alicia Rosevear <Alicia.Rosevear@MeridianEnergy.co.nz>
Sent: Thursday, 20 August 2020 3:44 PM
To: Peter Wakefield <Peter.Wakefield@ea.govt.nz>
Cc: jason.woolley@meridianenergy.co.nz; sam.fleming@meridianenergy.co.nz; Simone O'Loughlin <Simone.OLoughlin@MeridianEnergy.co.nz>
Subject: RE: Notice of Investigation reference 1912MERI2

Hi Peter

Just following up on the email below to see whether it is possible to have an extension to respond to the notice of investigation?

As Jason mentioned, we would be seeking an extension until 23 September 2020, if possible.

Kind regards
Alicia

Alicia Rosevear – Legal Counsel
Meridian Energy Limited
55 Lady Elizabeth Lane, Queens Wharf,
Wellington, New Zealand
M. 027 340 7694

Meridian.

Peter Wakefield

From: Andrew Anderson <Andrew.Anderson@mercury.co.nz>
Sent: Monday, 24 August 2020 2:51 PM
To: Peter Wakefield
Cc: james.flexman@mercury.co.nz; Nick Wilson; John Bright
Subject: Joining Investigations

Peter

Mercury wishes to become party to both investigations the Authority are undertaking with regards to the alleged breaches of clause 13.5A of the Electricity Industry Participant Code by Contact and Meridian.

Regards

ANDREW ANDERSON
TRADING MANAGER

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25 August 2020

Peter Wakefield
Senior Investigator
Electricity Authority
By email: peter.wakefield@ea.govt.nz

Dear Peter

Re: Investigation of alleged breaches of the Electricity Industry Participation Code 2010 by Meridian Energy Limited and Contact Energy Limited

We refer to the notices of investigation for the alleged breaches of the Electricity Industry Participation Code 2010 by Meridian Energy Limited and Contact Energy Limited dated 12 August 2020.

In accordance with regulation 17 of the Electricity Industry (Enforcement) Regulations 2010, Nova Energy Limited hereby notifies you that it considers that it was or is affected by the matter being investigated and wish to become a party to the investigation.

Please send any further notices concerning this matter to me at lkoomen@toddcorporation.com.

Yours sincerely

Liesbeth Koomen
General Counsel

E lkoomen@toddcorporation.com
P +64 4 901 7058
M +64277343149
Level 15, 95 Customhouse Quay | PO Box 3141 Wellington 6140 | New Zealand

25 August 2020

Peter Wakefield
Senior Investigator
Electricity Authority
By email: peter.wakefield@ea.govt.nz

Dear Peter

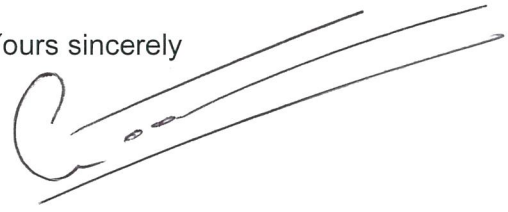
Re: Investigation of alleged breaches of the Electricity Industry Participation Code 2010 by Meridian Energy Limited and Contact Energy Limited

We refer to the notices of investigation for the alleged breaches of the Electricity Industry Participation Code 2010 by Meridian Energy Limited and Contact Energy Limited dated 12 August 2020.

In accordance with regulation 17 of the Electricity Industry (Enforcement) Regulations 2010, Todd Generation Limited hereby notifies you that it considers that it was or is affected by the matter being investigated and wish to become a party to the investigation.

Please send any further notices concerning this matter to me at lkoomen@toddcorporation.com.

Yours sincerely



Liesbeth Koomen

General Counsel

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Peter Wakefield

From: Matt Ritchie <Matt.Ritchie@genesisenergy.co.nz>
Sent: Monday, 17 August 2020 1:52 PM
To: Peter Wakefield
Subject: Regulatory investigations - affected party
Attachments: 1912MERI2_GENE_affected_party.pdf; 1912CTCT1_GENE_affected_party.pdf

Dear Peter,

Please find **attached** letters requesting Genesis Energy join as an affected party to two investigations announced on 12 August (refs: **1912MERI2**, and **1912CTCT1**).

Please don't hesitate to contact me if you have any questions.

Regards,
Matt

Matt Ritchie | Senior Advisor, Regulatory Affairs and Government Relations|
Genesis Energy Ltd
M. 027 204 3864

Peter Wakefield

From: Alicia Rosevear <Alicia.Rosevear@MeridianEnergy.co.nz>
Sent: Wednesday, 23 September 2020 3:33 PM
To: Peter Wakefield; Maria Burns
Cc: jason.woolley@meridianenergy.co.nz; sam.fleming@meridianenergy.co.nz
Subject: RE: [EXTERNAL] RE: Notice of Investigation reference 1912MERI2
Attachments: Letter to EA in response to HSOTC breach allegation - September 2020 (unredacted version).docx; Letter to EA in response to HSOTC breach allegation - September 2020 (redacted version).docx

Hi Peter / Maria

Please see attached Meridian's response to your notice of investigation of 12 August 2020.

Our letter contains confidential and commercially sensitive information, so I have also attached a redacted version for use in the event that the Authority wishes to make our response public.

Finally, we have a USB of detailed analysis undertaken by Meridian which we refer to in paragraphs 23 and 26 of our letter of response. Could you please let us know when would be suitable to drop off the USB to your offices?

Let us know if you have any questions or require any further information.

Kind regards
Alicia

Alicia Rosevear – Legal Counsel
Meridian Energy Limited
55 Lady Elizabeth Lane, Queens Wharf,
Wellington, New Zealand
M. 027 340 7694

Meridian.

From: Peter Wakefield <Peter.Wakefield@ea.govt.nz>
Sent: Friday, 18 September 2020 4:53 pm
To: Sam Fleming <Sam.Fleming@MeridianEnergy.co.nz>
Cc: Jason Woolley <Jason.Woolley@MeridianEnergy.co.nz>; Simone O'Loughlin <Simone.OLoughlin@MeridianEnergy.co.nz>; Alicia Rosevear <Alicia.Rosevear@MeridianEnergy.co.nz>
Subject: [EXTERNAL] RE: Notice of Investigation reference 1912MERI2

Hi Sam

I am on leave next week so please copy Maria Burns maria.burns@ea.govt.nz into your response.

Regards

Peter Wakefield
Senior Investigator

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Mob: +64 21 392 715

Meridian Energy Limited
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New Zealand
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23 September 2020

Peter Wakefield
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CONFIDENTIAL AND COMMERCIALLY SENSITIVE

Dear Peter

Meridian's response to notice of investigation of breach of clause 13.5A of the Code

Introduction

1. This letter responds to your notice of investigation dated 12 August 2020 in relation to an alleged breach of clause 13.5A of the Electricity Industry Participation Code 2010 (**"Code"**). Haast Energy Trading Limited and various others (**"complainants"**) allege that, from 11 November 2019 until 16 January 2020, Meridian breached the high standard of trading conduct (**"HSOTC"**) provisions in clause 13.5A of the Code.

2. We set out below our responses to the information requested in the notice of investigation, namely:

> "Whether you believe you have breached the Code
>
> Whether there is another provision you consider more accurately describes the nature of the event
>
> A full explanation of the circumstances surrounding the alleged breaches
>
> Identification of any information provided in your response that you consider confidential and that should not be included in the investigator's report under regulation 19 of the Regulations (regulation 15(2) of the Regulations)."

3. We note that we have previously provided information to the Electricity Authority (**"Authority"**) on 14 February 2020 responding to the Authority's fact-finding letter in relation to the alleged breach (**"Initial Response"**). Some of the material set out in this letter has already been provided to the Authority in the Initial Response.

Whether you believe you have breached the Code

4. Meridian strongly denies the alleged breach of the Code. Meridian considers its conduct at all times during the relevant trading periods to have been appropriate and reasonable, within the safe harbour provisions of clause 13.5B(1) of the Code, and consistent with the HSOTC provisions in clause 13.5A of the Code.

5. The essence of the complaint is that Meridian offered "tranches of Manapōuri hydro generation at well above its SRMC" – the complaint is therefore about the price at which Meridian and Contact submitted offers during the periods of spill in November and December 2019 and January 2020. It is not per se about the fact of the spill occurring but rather, that during those periods of spill, Meridian and Contact's short run marginal cost (**"SRMC"**) of generation was, according to the complainants, zero or no greater than $5/MWh and it was a breach of the Code for Meridian and Contact to make offers in excess of this measure of cost.

6. Meridian considers the complainants have invited the Authority to place an unduly narrow and unwarranted focus on the relationship between SRMC and offers on the wholesale spot market. The HSOTC provisions in the Code do not refer to the word 'cost', let alone reference the concept of SRMC. Re-interpreting the HSOTC provisions to effectively require offers not to exceed SRMC presents a real risk of undermining the fundamental design of the New Zealand wholesale market.

7. The better measure of the true costs of generation is long run marginal cost (**"LRMC"**), rather than SRMC. This is because generation costs are typically dominated more by investment costs rather than fuel costs. In order to ensure the market provides the appropriate incentives for sustainable and efficient entry, participants should be able to recover their investment costs. A strict obligation to price at SRMC, as the claimants advocate, may not create the appropriate incentives for parties to invest in new – particularly renewable – generation capacity, which would ultimately operate to the long-term detriment of consumers.

8. It would be a fundamental change to the market if generators were forced to construct offers based on SRMC. If the Authority wants to reform the normal operation of the wholesale market then the correct approach would be to consider Code changes, such as replacing the existing HSOTC provisions. The Authority should not seek to reform the market and establish a new normal via alleged breaches of the HSOTC provisions.

Offering prices above SRMC is not a breach of the HSOTC

9. The requirement in clause 13.5A of the Code is that generators must ensure that their conduct in relation to offers and reserve offers is consistent with a HSOTC. In the event the Authority considers that Meridian was not within the safe harbours and therefore not automatically compliant with the HSOTC standard, the Authority must go on to separately consider whether Meridian's trading conduct was of sufficiently high standard. The Code is clear that merely being outside the safe harbours is not in itself a breach of the HSOTC standard. As outlined above, the sole argument put forward by the complainants is that Meridian's conduct did not meet that standard because it did not offer at SRMC.

10. The Code does not provide guidance as to what amounts to a HSOTC. Nowhere does the Code state or imply that the HSOTC standard requires offers to be made at or below SRMC. We consider the argument made by the complainants to the contrary to be misconceived and without foundation. We also do not believe that when the Authority made the Code it would have intended the HSOTC provisions to be interpreted in the way suggested by the complainants. There has never been a requirement for generators to offer generation at SRMC and applying such a requirement would create more uncertainty for investing in, and building, new generation. The suggestion by the complainants that offers in every trading period should be at SRMC but that over a longer period prices might somehow reflect LRMC is illogical. Each year is made up of individual trading periods and if offers in each trading period must be at SRMC then it is more difficult for generators to recover their fixed costs.

11. Any new interpretation of the HSOTC provisions which requires generators to offer in accordance with SRMC is a fundamental shift in the market and can only be introduced via a Code change process following the statutory requirements for consultation and a cost benefit assessment.

12. As previously discussed in the Initial Response provided to the Authority, analysis by Dr E Grant Read in "*An Economic Perspective on the New Zealand Electricity Market*"[1] finds that deviation from SRMC spot prices is not a major cause for concern. Theoretically, an optimal market design might result in low, SRMC-based prices for extended periods but, in dry years, it would also be optimal to set prices so high, for such long periods, as to be politically (and hence commercially) unsustainable. In some markets, "capacity prices" are added to support generator revenues at times of low prices but in New Zealand's energy only market, it is necessary for spot prices to on average sit above SRMC and at a level which induces sustainable entry. The paper also considers empirical analysis suggesting that "Some deviation from SRMC pricing is likely to be one of the means used to sustain acceptable revenue streams through the long periods of relative surplus expected in a hydro dominated market."[2] In fact, "This market has been designed to operate just like the

[1] E Grant Read *An Economic Perspective on the New Zealand Electricity Market* 2018.
[2] Ibid, page 6.

vast majority of successful markets operating outside the electricity sector, and with similar cost structures, where pricing above SRMC has always been considered absolutely normal."[3] In Dr Read's view, alignment of prices with LRMC entry costs across the spectrum of plant types, is the most important measure of market performance. "Costs in the New Zealand electricity sector have traditionally been dominated by investment costs, rather than fuel costs, and this will become even more true, as the role of thermal generation options recede. So, the key issue must be to provide appropriate LRMC signals to guide investment decisions."[4]

13. Dr Read's reasoning is reflected in previous Authority papers. In the Authority's final decision paper on the undesirable trading situation ("**UTS**") of 26 March 2011, the UTS Committee in explaining its reasons for resetting Genesis Energy's offers to $3,000/MWh, acknowledged that although a rational commercial strategy for Genesis Energy's Huntly plant would have been to offer at SRMC, by definition a net pivotal generator is able to determine prices in at least one region and by offering at SRMC, this would in turn undermine the net pivotal generator's ability to demand from purchasers a price for hedge cover in the future that is above SRMC.[5] The UTS Committee also stated that "a time-consistent and stable equilibrium outcome is for the net pivotal generator to offer into the wholesale market for electricity at or near the price of its hedge contracts, i.e. at or near the LRMC of the next best economic alternative. Purchasers would thus be incentivised to seek hedge cover in the future and wholesale electricity prices would tend towards the LRMC of the economic alternative to the net pivotal generator".[6]

14. In addition, the UTS Committee stated that "In a situation where there is a willing buyer and a seller, a net pivotal generator should be able to price up to the economic alternative of the buyer, which would approximate the LRMC of a new entrant generation option or the opportunity cost of electricity for consumers (i.e. the price at which demand response occurs)".[7] It is clear from these statements that the Authority does not expect generators to price their offers at SRMC.

15. If an interpretation of the HSOTC provisions was adopted that required generators to offer at SRMC, there may be perverse outcomes. In addition to the lack of investment in new generation already noted, generators could be incentivised to pull low-SRMC generation out of the market. Incentivising this behaviour would not benefit consumers in the long term. Again, any requirement to offer at SRMC should follow due code change process and must not be implemented through a HSOTC ruling.

16. In short, Meridian considers its conduct in relation to offers and reserve offers was at all times consistent with a HSOTC. Furthermore, Meridian's offers were only marginal and setting clearing prices in around 33 percent of trading periods, consistent with Meridian's market share of generation. When Meridian offers were marginal, prices were lower on average. As Figure 1 shows, average market prices for the period of the allegations are unremarkable compared to the rest of the 2019 calendar year. Prices were also low compared to prices in other situations where a breach of a HSOTC has been alleged. In this market context it is difficult to see how Meridian's conduct could be considered in any way unusual, improper, or not of a 'high standard'.

Figure 1: Average daily wholesale prices for NZ since 1 January 2019

[3] Ibid, page 6.
[4] Ibid, page 7.
[5] Electricity Authority, Final decision on the Undesirable Trading Situation of 26 March 2011, and Final decision on actions to correct the Undesirable Trading Situation of 26 March 2011. Decision: 4 July 2011.
[6] Ibid, para 173.
[7] Ibid, para 188.

The safe harbours in the Code apply

17. During times of spill from 10 November 2019, Meridian's offers fall within the safe harbour provisions in the Code and therefore Meridian is deemed to comply with the clause 13.5A obligation to "ensure that its conduct in relation to offers and reserve offers is consistent with a high standard of trading conduct."

18. The complainants allege that Meridian is in breach of the safe harbour provisions, including as a consequence of the Manapōuri offers resulting in a material increase in the final price at which electricity is supplied (clause 13.5B(1)(c)(i) of the Code) and that Meridian benefitted from an increase in the final price (clause 15.5B(1)(c)(iii)). The allegation also proceeds on the basis that Meridian is "pivotal 100% of the time" such that the safe harbour in clause 13.5B(1)(c) will never apply.

19. Those claims are incorrect. Addressing each of the safe harbour provisions in turn:

    a. As will be apparent from Figures 5 and 6 (set out in paragraph 64 below), Meridian made offers in respect of all of its available generating capacity during the relevant trading periods. Meridian therefore complied with clause 13.5B(1)(a) of the Code.

    b. When Meridian decided to submit or revise an offer, it did so as soon as it could. Meridian therefore complied with clause 13.5B(1)(b) of the Code. In relation to those trading periods between 11 November 2019 and 16 January 2020 when Meridian was not pivotal, this fact, in combination with paragraph 19a. above, means that Meridian fell within the safe harbours.

    c. In relation to those trading periods between 11 November 2019 and 16 January 2020 when Meridian was pivotal its offers were generally consistent with offers it had made when it was not pivotal. Meridian therefore complied with clause 13.5B(1)(c)(ii) of the Code. We also believe that, in terms of clause 13.5B(1)(c)(i) of the Code, in periods when Meridian was pivotal prices and quantities in Meridian's offers did not result in a material increase in the final price at which electricity was supplied in a trading period at any node at which Meridian was pivotal, compared with the final price at the node in an immediately preceding trading period[8] or other comparable trading period in which Meridian was not pivotal at that node. These facts, in combination with 19a. and 19b. above, mean that Meridian also fell within the safe harbours when pivotal.

20. Meridian does not in the course of trading consider or calculate whether it is pivotal. S9(2)(b)(ii) [redacted] Following the allegations, Meridian has undertaken pivotal analysis in respect of the 3168 trading periods from 11 November 2019 to 16 January 2020 (the date that volumes from Manapōuri Lake Control reduced back to minimum environmental flows). The methodology used was to remove all of Meridian's offers from the offer stack and check whether there was enough energy to meet demand both nationally and in the South Island.[9] If 1 MW or more of Meridian's generation was required to meet demand then Meridian was considered pivotal. This methodology aligns with the definition of pivotal in the Code.

21. The analysis found that over the period in question, Meridian was less likely to be pivotal overnight between trading periods 1 to 12 inclusive – 2 percent of the time nationally and 46 percent of the time in the South Island. In the remaining trading periods Meridian was nationally pivotal for 69 percent of trading periods and pivotal in the South Island for 86 percent of trading periods.

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[8] In 64 per cent of the trading periods from 11 November 2019 to 16 January 2020 there was a fall in final prices compared with the final price in an immediately preceding trading period, meaning safe harbour 13.5B(1)(c)(i) applies; for periods where there was an increase in final price compared to an immediately preceding trading period Meridian's offers did not result in a material increase in final prices compared with the final price in other comparable trading periods in which Meridian was not pivotal.

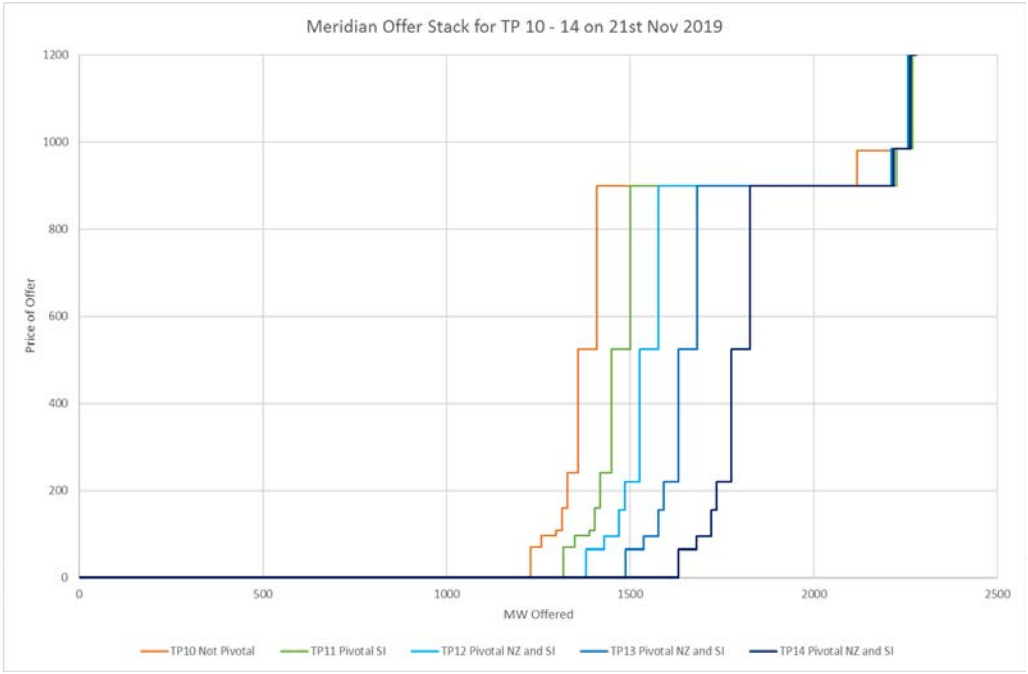
[9] At a national level, if the offer stack with Meridian's offers removed still included enough energy to meet demand plus transmission losses then Meridian was not pivotal. For the South Island, Meridian's offers were removed from the offer stack and remaining offers assessed against demand in each island, factoring in HVDC flows (allowing the HVDC to flow at the SIR HVDC risk offset less the 30 MW modulation risk).

22. To the extent the allegations are linked to trading periods 1 to 12 overnight, these were trading periods in which Meridian was often not pivotal. In trading periods where Meridian was not pivotal, compliance with the two safe harbours in clauses 13.5B(1)(a) and 13.5B(1)(b) of the Code is sufficient to establish that Meridian was making offers consistent with a HSOTC. By Meridian's calculations, we were not pivotal in the majority of overnight trading periods.

23. In trading periods when Meridian was pivotal, compliance with one of the safe harbours in clause 13.5B(1)(c) of the Code is also required for the safe harbours to apply and for Meridian's conduct in relation to those offers to be deemed to be consistent with a HSOTC. Meridian complied with the safe harbour in 13.5B(1)(c)(ii). In particular, Meridian's offers when pivotal were generally consistent with offers during non-pivotal periods. We have analysed and compared in detail many of the more than 3000 trading periods between 11 November 2019 and 16 January 2020. That analysis confirms Meridian's offers in periods when it was pivotal were generally consistent with its offers in periods when it was not pivotal. We have provided this analysis separately to the Authority.

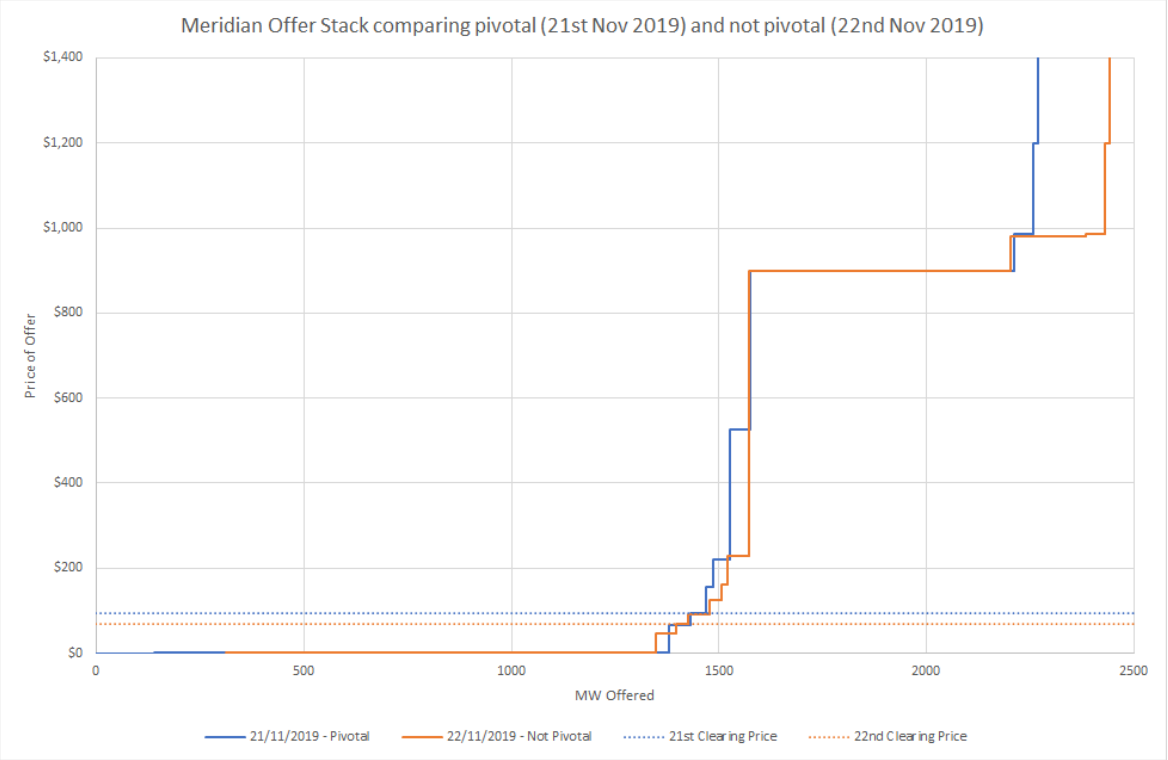
24. Figure 2A below compares Meridian's offer stacks for trading periods 10 to 14 on 21 November 2019. This is the period leading into the morning peak. As can be seen, Meridian offered increasingly higher volumes of generation at near zero prices as demand S9(2)(b)(ii) increased. Meridian also moves from being non-pivotal, to being pivotal in the South Island, and then pivotal in both the South Island and New Zealand in the later three trading periods. Meridian's offer stacks are clearly "generally consistent" between pivotal and non-pivotal periods.

Figure 2A: Meridian offer stacks comparing trading periods 10 to 14 on 21 November 2019



25. Figure 2B isolates a specific trading period (trading period 12) on two consecutive days – 21 and 22 November 2019. Meridian was pivotal in trading period 12 on 21 November, while in trading period 12 on 22 November Meridian was not pivotal. Meridian considers the offers made on the pivotal trading period to be "generally consistent" with the offers made on the non-pivotal trading period. There were some minor differences, but these are explained by changing circumstances across the two days. As can be seen, Meridian offered slightly more generation at near zero prices on 21 November. S9(2)(b)(ii) In addition, demand varied by around 70 MW between these two days and this likely caused the difference in clearing price between the two days. None of these factors mean that Meridian's offers were anything other than "generally consistent" between the two trading periods.

Figure 2B: Meridian offer stacks comparing trading period 12 on 21 and 22 November 2019



26. Based on the analysis we have completed we believe Meridian also complied with the safe harbour in clause 13.5B(1)(c)(i). In particular we are confident that prices and quantities in Meridian's offers did not result in a material increase in the final price at which electricity is supplied in a trading period at any node at which Meridian was pivotal, compared with the final price at the node in an immediately preceding trading period or other comparable trading period in which Meridian was not pivotal at that node. We believe the graphs above bear this out and we have shared the full analysis with the Authority alongside this letter.

Interpretation of the Authority's statutory objective

27. The complainants refer to legal advice given to the MDAG that says, in interpreting the HSOTC provisions, a court would consider the Authority's statutory objective. The Authority's statutory objective is to "promote competition in, reliable supply by, and the efficient operation of, the electricity industry for the long-term benefit of consumers."

28. The complainants refer to a 2011 paper by the Authority interpreting the term "competition" to mean workable or effective competition.[10] In this paper, the Authority suggests that the strength of competition in a market is indicated by the extent to which a firm can profitably sustain a change in its product or service offering that is unfavourable to the market. It views workable competition as placing pressure on firms to set prices close to their marginal cost to supply.[11] The complainants then assert that, given this view of workable competition, the Authority should interpret offer prices that exceed some measure of SRMC as a breach of the HSOTC provisions. This in our view misunderstands the Authority's statutory objective. The statutory objective charges the Authority to "promote competition" … "for the long-term benefit of consumers"; it does not require it to regulate prices consistent with outcomes from any particular state of competition (perfect, workable, or otherwise). The Authority is to promote competition—rivalry—for the long-term benefit of consumers and it should continue to seek ways of improving the competitive process regardless of its view as to the state of competition in the market.

[10] Electricity Authority *Interpretation of the Authority's statutory objective* 2011, para A.15.
[11] Ibid, para A.22.

29. As noted by Sapere Research Group in the paper titled "*Economic review of Haast Energy claim that Meridian has breached the HSOTC rule and given rise to a UTS*", dated 2020 (a copy of which was provided to the Authority in the Initial Response), if the Authority was to interpret the HSOTC provisions as requiring offers to reflect SRMC then this would be more akin to the role of the Commerce Commission, under Part 4 of the Commerce Act 1986, in price regulating firms to achieve an outcome consistent with outcomes produced in workably competitive markets.[12] We do not consider this to be consistent with the Authority's statutory objective and Meridian would therefore be very concerned if the Authority interpreted the HSOTC provisions as requiring an assessment against economic costs over a short time period.

30. In this context, it would be inconsistent with the Authority's objective for it to effectively step in and penalise a market participant every time it offers above some measure of economic costs. Limiting offers to economic costs in the short term would have significant long-term implications for dynamic efficiency and investment signals in the market. Meridian considers there to be a high risk of unintended consequences from such an approach. A rule that was based on a measure of costs, rather than workable competition, would not promote competition as is required by the Authority's statutory objective, but would seek to impose a specific state of competition.

31. In addition to considering the purpose of the Code when interpreting the trading conduct provisions, the legal advice referenced by the complainants also states that they would expect a court to first consider any "external aids to interpretation, particularly documents generated in the development of the trading conduct provision, such as the Authority's consultations papers and supplier submission".[13]

32. In the Authority's consultation paper for the development of the trading conduct provision, it describes the objective of the proposed amendment and states that "the amendment should (a) deter suppliers from raising their prices simply because they are temporarily pivotal in the spot market; (b) allow suppliers to charge prices needed to justify efficient investment in capacity; (c) not create undue compliance costs".[14] Interpreting the HSOTC provisions as requiring offers to reflect SRMC would not allow suppliers to charge prices needed to justify efficient investment in capacity.

33. Meridian would be therefore be very concerned if compliance with the HSOTC provisions required an assessment against economic costs over a short time period. Any interpretation of the HSOTC provisions must acknowledge that spot prices may deviate from short run marginal costs. Limiting offers to economic costs would have significant long-term implications for dynamic efficiency and investment signals in the market. Meridian considers there to be a high risk of unintended consequences from such an approach.

MDAG's review of high standard of trading provisions

34. In the context of MDAG's current review of the HSOTC rules (being undertaken at the request of the Authority), Meridian agrees with the MDAG's description of the current HSOTC provisions as "amorphous", "indirect", and "obtuse". While we agree with the MDAG that there are significant problems with the current provisions, we highlight that the current HSOTC rule is not based on any established body of decisions or precedent which has considered what type of trading conduct is of a 'high' standard and what type of trading conduct is not of such standard. And nor are there any guidelines from the Authority indicating its view as to how the rule is to be interpreted and, in the several years since it was introduced, the Authority has not taken substantive enforcement action in respect of any alleged breaches of the rule. This means no cases have been referred by the Authority to the Rulings Panel and there are no decisions in respect of the rule.

35. We also refer to MDAG's recent evaluation panel process where two, highly experienced panels were established to test the current and proposed Code provision. The two panels made the following observations in relation to the existing HSOTC rule:

    a. Panel One (consisting of Raynor Asher, Alan Bollard and Pat Duignan) found parts of the existing Code could be interpreted in a variety of ways, making it difficult to apply the Code in a consistent

[12] Sapere Research Group *Economic review of Haast Energy claim that Meridian has breached the HSOTC rule and given rise to a UTS* February 2020, paras 35 to 38.
[13] Bell Gully, *Interpretation of the Trading Conduct Provisions: Summary of interpretative aids* 27 August 2018.
[14] Electricity Authority *Improving the efficiency of prices in pivotal supplier situations: Consultation paper* 18 February 2014.

and robust manner. In particular, Panel One noted that "The existing Code is unsatisfactory because the core test has no recognised meaning in law".

b. Similarly, Panel Two (consisting of Mark Berry, Rhys Harrison and Iain Rennie) also considered the current Code to be unsatisfactory. Panel Two found it difficult to apply the existing Code, describing it as being "very unsatisfactory" and requiring the application of a "broken test".

Meridian agrees with those observations. We have long had a concern that the existing HSOTC rule is so vague as to be invalid and unenforceable as a matter of law.

Whether there is another provision you consider more accurately describes the nature of this event

36. Meridian has not identified another Code provision that more accurately describes this event. Meridian does not consider the events being investigated to have resulted in a breach of any provision of the Code.

A full explanation of the circumstances surrounding the alleged breaches

37. Meridian considers the events being investigated by the Authority were, in hydrological terms, extraordinary and exceptional – and Meridian's conduct during the investigation period was a response to those exceptional weather events. It is therefore important to look at the full circumstances and context surrounding the events being investigated, details of which are set out below.

Market conditions

38. At the time of the alleged Code breach and immediately preceding that period, the wholesale spot market was influenced by low hydro storage and ongoing gas supply concerns. At the start of November 2019, national hydro storage was below average for the time of year. Uncertainty continued in the gas market and therefore in relation to thermal generation in the wholesale electricity market. There was an unplanned reduction in production at Kupe in late September and early October, and a planned outage of Kupe from 30 October to 27 November 2019. National demand in the last quarter of the 2019 calendar year was also higher than the average for the last 10 years. Because of the tightening of supply and increased demand, wholesale market prices prior to December were generally above average (wholesale prices for New Zealand in October 2019 averaged $131/MWh, in November 2019 $110/MWh and in December 2019 $61/MWh).

39. Further, at the time of the alleged Code breach and immediately preceding that period, thermal output in the North Island was extremely low (less than 25% of available capacity) despite market prices being above analysts' assessments of running costs of many of those thermal plants.

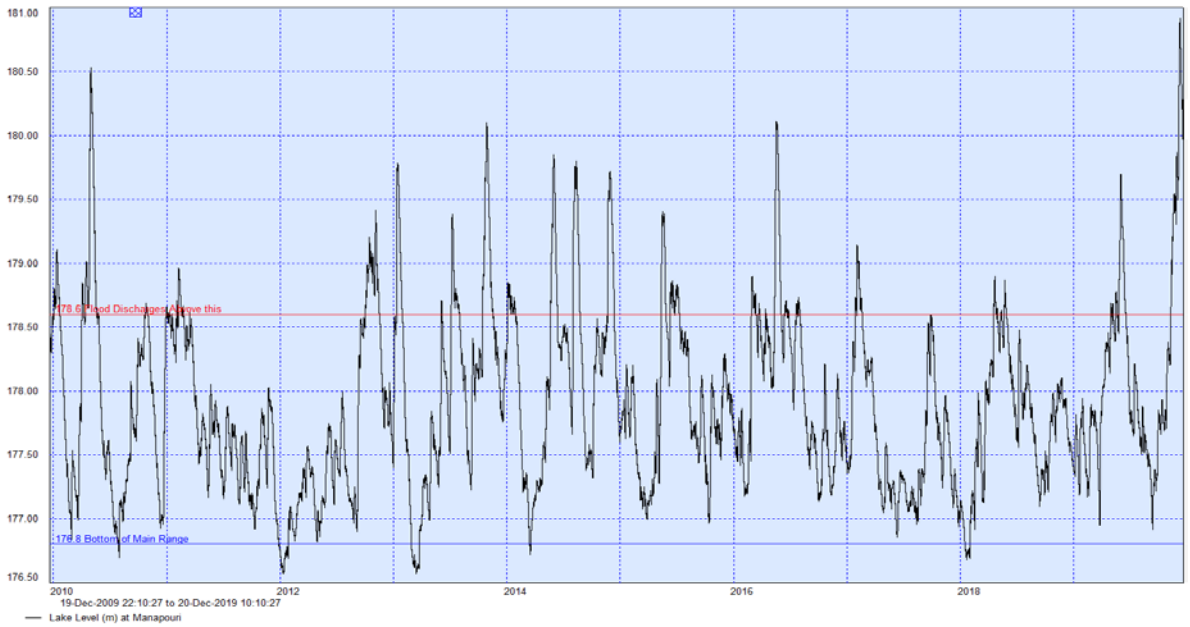
Meridian's hydro schemes

40. As the complainants make allegations in respect of Meridian's Manapōuri and Waitaki schemes, an understanding of those schemes and their operation is necessary to then understand the management of the inflow events and Meridian's trading through November - January. It is also important to note that, for both of Meridian's South Island hydro schemes, some spill is always inevitable and unavoidable given the volatile and unpredictable nature of inflows and the limited storage capacity in the various hydro lakes.

Manapōuri

41. The Manapōuri scheme is fed by two lakes – Te Anau and Manapōuri. Both lakes have very little storage capacity compared to the inflows they receive. It is common to receive inflow events that result in spill down the Waiau River. The enabling environmental legislation for the Manapōuri scheme is designed such that regular large flows are expected down the River, much like what would occur in a natural and uncontrolled state. Figure 3 below shows the level of Lake Manapōuri since 2010, including frequent large inflow events necessitating spill. As can be seen, the recent inflow event resulted in the highest lake levels recorded since 2010 and in fact, lake levels were the second highest ever recorded.

Figure 3: Manapōuri Lake Levels



Waitaki

42. The Waitaki scheme is a chain of eight power stations (six controlled by Meridian) with three lakes in the headwaters – Tekapo, Pūkaki, and Ōhau – connected by a series of canals and rivers. Pūkaki (and to a lesser extent Tekapo) have significant storage capacity. Lake Tekapo is not managed by Meridian. Lake Ōhau has little storage capacity and a narrow operating range. Control gates feed Lake Ōhau water into the canal system and through all of the three Ōhau power stations, A, B, and C. When the level of Lake Ōhau is above 520.25m, the Ōhau Canal gate flow must be at least 170 cumecs.[15] This requires minimum generation at Ōhau A, B and C of 227MW. When the level of Lake Ōhau is above 520.4m, two things occur:

    a. Ōhau Canal gate flow must be 200 cumecs.[16] This requires minimum generation on Ōhau A, B and C of 267MW.

    b. Water will begin to flow uncontrolled over the weir, into the Upper Ōhau River, and then into Lake Ruataniwha. This water must then be generated though both Ōhau B and Ōhau C or spilled from the Ruataniwha Spillway into Lake Benmore.

43. In addition to Lake Ruataniwha, there are small storage lakes above the next three power stations in the mid-Waitaki – Benmore, Aviemore, and Waitaki. High inflows in the headwaters of the scheme are generally accompanied by high tributary flows into Lake Benmore, for example from the Ahuriri River, raising the generation required to pass this water (in addition to Ōhau C discharges and any spill from lakes Ruataniwha, Pūkaki and Tekapo) though the Benmore, Aviemore and Waitaki power stations. At times, it is not possible to generate with all these uncontrolled inflows and mid-Waitaki spill will occur at some or all of the three stations. When we can, Meridian prefers to spill from Aviemore and Waitaki as they are less efficient stations.

Plant outages

44. During the November and December inflow events, several of Meridian's generating units were on outages, limiting generation output. For example:[17]

[15] Environment Canterbury *Resource Consent CRC905330.3*, Condition 6, Operating Rules 2.3.
[16] Ibid.
[17] Full outage information was posted to POCP.

a. Unit 6 at Ōhau A station was on a long-term outage for half-life refurbishment (this outage also limits canal flows and generation capacity at Ōhau B and Ōhau C stations).

b. Benmore station had several outages across November for cooling water project work, including a full station outage on 24 November.

c. Unit 4 at Manapōuri has been out since October because of bearing issues.

45. There are also various hydrological constraints and resource consent requirements that limit Meridian's ability to generate.[18]

Transmission constraints

46. Transmission constraints affected generation at both Manapōuri and throughout the Waitaki chain during the period of the allegations. For example:

a. From 25 to 29 November, an outage on the NMA_TWI circuit constrained Manapōuri generation. Meridian's analysis was that this would constrain Manapōuri generation to 650 MW. However, on 25 November the forward schedules showed this constraint to limit Manapōuri generation to around 450 MW and in real time the system operator constrained back Manapōuri generation to around 415 MW. A system operator modelling error was subsequently found to be double counting the 50 MW load at Tiwai for the fourth potline and unnecessarily increasing the severity of the constraint. This error has been self-reported by the system operator[19] as a Code breach and corrected, meaning that when the same outage occurred on 9 December generation was less constrained.

b. 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. Transpower has advised that the outage will be in place until a temporary solution is implemented and that they anticipate this will be completed by April 2020. The ISL_LIV_1 outage causes 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 at that time to around 200 MW, compared to the nameplate capacity of 325 MW for the two stations combined. This constraint is sensitive to the level of Clutha and Manapōuri generation, which were both generating significant volumes at the time.

c. For short periods on 18 November and between 6 and 7 December the system operator issued Customer Advice Notices for electrical storms and reclassified risk on several transmission circuits affecting Manapōuri generation.

d. Meridian generation was also limited at times by the bi-pole capacity of the HVDC link and Southland export constraints.

47. Meridian offers during the period of the allegations S9(2)(b)(ii) [redacted] In the period to which the allegations relate, neither Meridian's offers nor market prices were particularly high relative to other offers in the market or to average market prices.

48. Meridian does use risk management product to manage locational price risks. However the risk management products available in the hedge market, including those in the financial transmission rights ("**FTR**"), Australian Securities Exchange ("**ASX**"), and Over the Counter ("**OTC**") markets are not always

[18] Appendix C of the Authority's preliminary decision on claim of an undesirable trading situation briefly summarises some of these.

[19] Letter to the Electricity Authority Compliance Team from Scott Avery of Transpower, dated 19 December 2019.

sufficient in their range and scope to cover locational price risks of the kinds Meridian experiences. Meridian is a significant purchaser of FTR volumes in the market but there are not sufficient volumes available for participants to cover all their risk so there remains an incentive for generators to manage their offers in an attempt to avoid financial loss as a result of constraints. The ASX and FTR markets provide homogeneous baseload products that cover months or quarters at a time at set locations. Neither market provides a product that is well suited to cover transient outages (particularly unplanned outages), the derating of transmission lines during electrical storms, or modelling errors. We also note that MAN2201 is not one of the current eight FTR nodes. The OTC market is generally more flexible provided that risks are forecast ahead of time and a willing counterparty can be found (something that is challenging for risk like this at Manapōuri). All hedge markets come with their own costs and risks that can make them relatively expensive risk management tools.

49. In a series of papers, the Authority has previously indicated that managing transmission constraints is part of the normal or ordinary operation of the wholesale market. In particular, in the Authority's decision that a UTS did not exist on 2 June 2016 the Authority's reasons included that:[20]

> "The situation was within the normal operation of the wholesale market because Meridian's offer behaviour was not an unusual response for a market participant facing the risk of financial loss as a result of the tight and uncertain market conditions that existed in the North Island over the relevant trading periods. There is evidence that a similar approach is also used by other industry participants to manage the risk of financial loss when faced with similar scenarios of basis (or locational) price risk."

Similarly, the Authority in its 2013 Market Performance Review[21] explicitly identified offer pricing during spill to manage transmission constraints as an issue with *market design* i.e. the design of the market incentivised this behaviour (and therefore a Code change would be necessary to reform the market design). Seven years later, the Authority is still yet to reform market settings in respect of offer pricing during spill that manages transmission constraints.

50. We also refer to the events of 2016, where it was alleged that Meridian offers over the evening peak on 2 June 2016 caused both a UTS and a breach of the HSOTC provisions in the Code. Meridian had increased offer prices for some volumes of generation to mitigate basis risk that might result if the HVDC constraint were to bind during a period of high North Island prices.

51. In that case, the Authority decided, on 4 May 2017 not to refer the HSOTC complaint to the Rulings Panel. In so doing, the Authority wrote a letter to Meridian

    a. expressing the opinion that its offers on 2 June 2016 had in its "clear view" breached a HSOTC; but also

    b. acknowledging that there were disparate opinions[22] as to whether Meridian complied, and that the HSOTC Code provisions might require clarification.

52. In response, Meridian's Chief Executive at the time wrote to the Authority Chair on 27 June 2017, saying that Meridian disagreed with the letter and that it was wrong in law. Meridian also put out a press release saying the same thing. Meridian urged the Authority to reform the Code to address the uncertainty created and was entirely transparent that Meridian's position "remains unaltered in terms of the legal position and in similar situations we will continue to act in a way that is both appropriate from a legal perspective and protects the interests of our shareholders."[23]

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[20] https://www.ea.govt.nz/dmsdocument/21184-uts-2-june-2016-decision-paper
[21] https://www.ea.govt.nz/dmsdocument/15431-increased-electricity-spot-and-hedge-price-enquiry
[22] The difference of opinion was not just between the Authority and generators. Even within the Authority the investigator appointed could not find evidence that the HSOTC provisions had been breached and the Authority's independent expert also did not consider there to be a breach. The Board's letter ignored both of those expert opinions.
[23] Letter from Mark Binns, Meridian Chief Executive to Brent Layton, Electricity Authority Chair (27 June 2017).

53. If the Authority now wishes to establish that market participants should not use offers to manage transmission constraints then it must do that by way of amendment to the Code following consideration of the costs and benefits to consumers in the long term.

The inflow events

54. Over the period to which the allegations relate, there were two significant inflow events in both the Waiau and Waitaki catchments, the first in the second week of November and the second during the first week of December. All Meridian spill data for the relevant period has been supplied to the Authority. The various instances of spill can be broken down to three broad classes with different catchment management challenges and periods of time associated:

    a. **Spill in the Waiau catchment at Manapōuri Lake Control.** This began on 9 November and continued until 16 January. Spill volumes peaked on 8 December, coinciding with the second, significant inflow event. While it is not uncommon to enter the high range of the Waiau lakes and spill, back-to-back inflow events and lake levels like those seen in December are rare and exceptional. In fact, lake levels in this event were the second highest ever recorded.

    b. **Spill and mandatory canal flow to manage the Ōhau catchment.** As noted above, when the level of Lake Ōhau is above 520.25m, mandatory canal flows of 170 cumecs must occur. When the level of Lake Ōhau is above 520.4m, mandatory canal flows increase to 200 cumecs and water will also begin to flow uncontrolled over the weir, into the Upper Ōhau River, and then into Lake Ruataniwha. Canal water must pass through Ōhau A station before reaching Lake Ruataniwha, while water in the Upper Ōhau River flows directly into Lake Ruataniwha. All water in Lake Ruataniwha must then be generated through both Ōhau B and Ōhau C stations or spilled from the Ruataniwha Spillway into Lake Benmore. Mandatory canal flows were in place:

        - from 10 November to 21 November; and
        - from 3 December to 18 December.

        Spill over the weir into the Upper Ōhau River occurred:

        - intermittently and in small volumes from 10 November to 19 November (flows peaked at 26 cumecs – 14 cumecs more than the consented minimum flows in the Upper Ōhau River); and
        - from 3 December to 16 December in much greater volumes (flows peaked at over 300 cumecs). These volumes could not be managed by generation at Ōhau B and C stations and therefore spill occurred from the Ruataniwha Spillway between 7 December and 11 December.

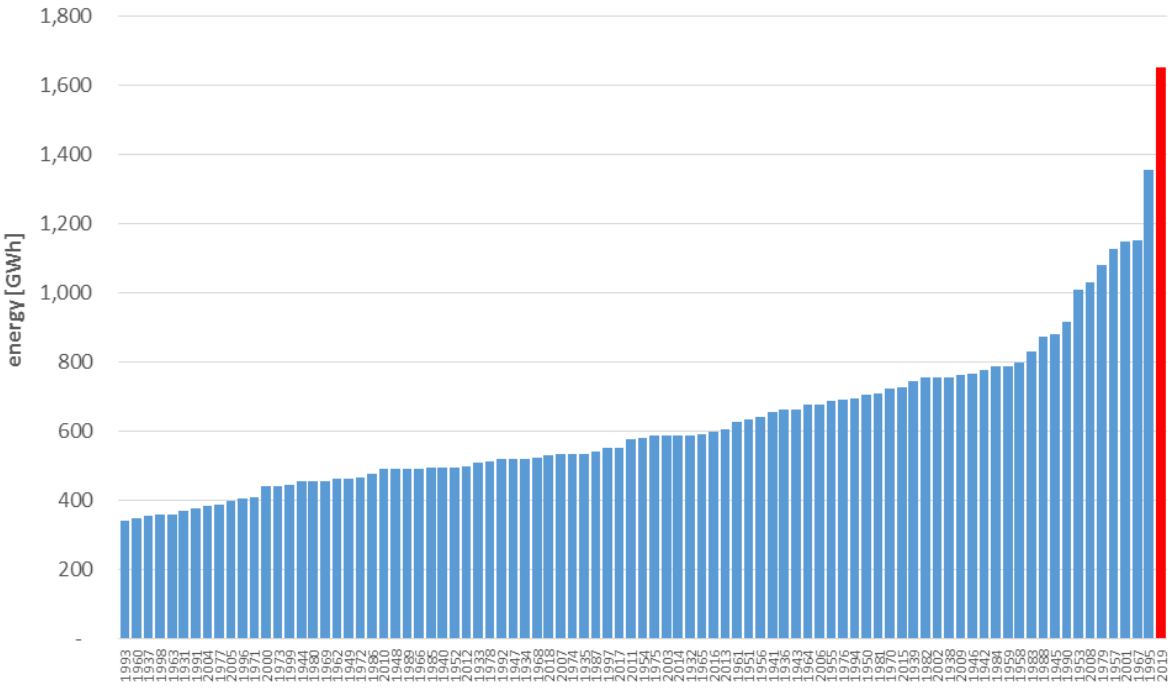
    c. **Spill to manage storage in lakes Pūkaki and Tekapo**. Spill from Lake Pūkaki into Lake Benmore began on 8 December and continued until 31 December. Lake levels increased rapidly – at the start of November the level of Lake Pūkaki was around average for the time of year and at the start of December there was still around 400 GWh of storage headroom in Lake Pūkaki, while Lake Tekapo was sitting at below average levels for the time of year. Lake Tekapo is not controlled by Meridian but the resulting spill from Lake Tekapo must be managed downstream by Meridian. Spill from Lake Tekapo, via Lake George Scott Spillway, to Lake Benmore occurred from 14 December to 31 December.

55. The events being investigated by the Authority are therefore related to exceptional weather conditions that created significant safety risks for the communities and environments in which Meridian operates. Meridian used its best endeavours to manage the weather events in real time and based on our experience of managing similar (but less extreme) situations. Managing the flood was Meridian's priority at the time and we did not adopt novel trading tactics in the midst of this event – we behaved in the same way as Meridian and other hydro generators have done, consistently, for the last nine years.

56. The mean total inflow into Lake Manapōuri during November and December 2019 was the highest since records began in 1932. This resulted in the second highest lake levels ever recorded for the Manapōuri scheme. Inflows were also exceptional in the Waitaki catchment. Total Benmore inflows in December 2019 were the second highest on record, since records began in 1965. Total inflows at Benmore are a good measure of how much water Meridian is dealing with as it sums inflows from Lake Ōhau, Pūkaki and Tekapo as well as Benmore tributaries. Measured in terms of energy, NZX hydro data in Figure 4 below shows that

not only was this period of inflows[24] in 2019 the wettest event recorded, it was significantly wetter – 22% more than the next wettest event record back in 1995.

Figure 4: NZX hydro Waitaki inflows 25 November – 15 December



57. As set out above, the inflows across Meridian's two catchments were the result of two distinct rainfall events that swept the county. Collectively, these 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.

Minimisation of safety and environmental risks

58. Meridian used its best endeavours to manage the weather events in real time based on our experience of managing similar but less extreme situations. Meridian's priority was to manage our dams and gate control structures in a way that minimised safety and environmental risks. We do this by adopting safe and simple operational settings that achieve stable flows downstream. Meridian's trading tactics primarily seek to implement those operational settings.

59. Revenue was not Meridian's priority during this period and offer tactics during this period did not deviate from Meridian's standard approach during periods of spill over the last nine years.

60. Meridian has over 40 resource consents for the Waitaki scheme, which stipulate maximum lake levels, design flood levels, maximum discharge rates, flow change rates, and mandatory flows. Collectively these consents are designed so that natural hazards like floods are managed in such a way that dams do not fail and the risk of harm to people and property downstream is minimised.

Meridian's trading and dispatched generation

61. Traders will typically offer [redacted] S9(2)(b)(ii) [redacted] Over the relevant period the key risk faced was obviously the risk of spill. Meridian's traders offered more volume to clear over the period of the allegation as inflows arrived in our catchments.

[24] Note the period 25 November to 15 December is when most inflows occurred and, because of storage, precedes the dates when spill occurred from Lake Pūkaki.

62. Meridian generally runs its generation plant as a portfolio. Overnight when there is less load, we will often back generation off in Manapōuri and instead generate more from the Waitaki scheme to manage hydrology and pass water through the chain. We typically do this for two reasons:

    a. To manage Lake Ōhau flows including mandatory canal flows and spill over the weir, or to avoid initiating spill over the weir.

    b. To help manage the level of smaller storage lakes (Ruataniwha, Benmore, Aviemore, and Waitaki). There are different flows from different stations and these lakes are often left with too much or not enough storage – too much storage can result in the initiation of new spill in the Waitaki scheme; not enough storage can limit generation on the Waitaki scheme during the next day, including limits to peaking generation.

63. During November and early December (before the significant inflow event), we were regularly generating overnight from the Waitaki scheme in preference to Manapōuri, for both reasons outlined above. For example, from 10 November to 21 November 2019 there were mandatory canal flows from Lake Ōhau as well as some spill over the weir. The Ōhau stations needed to use this water to generate, including overnight, so traders offered S9(2)(b)(ii) [redacted] As can be seen in Figure 2 below, from early December, with the start of the second large inflow event and more widespread and unavoidable spill in the Waitaki catchment, Manapōuri was generating hard right through the nights.

64. We have recreated below in Figure 5 and Figure 6 the Manapōuri and Waitaki offer stacks from the appendices of the allegation letter. Both figures have been marked up to indicate some of the reasons for Meridian's offers.

Figure 5: Marked up Manapōuri offer stacks and generation

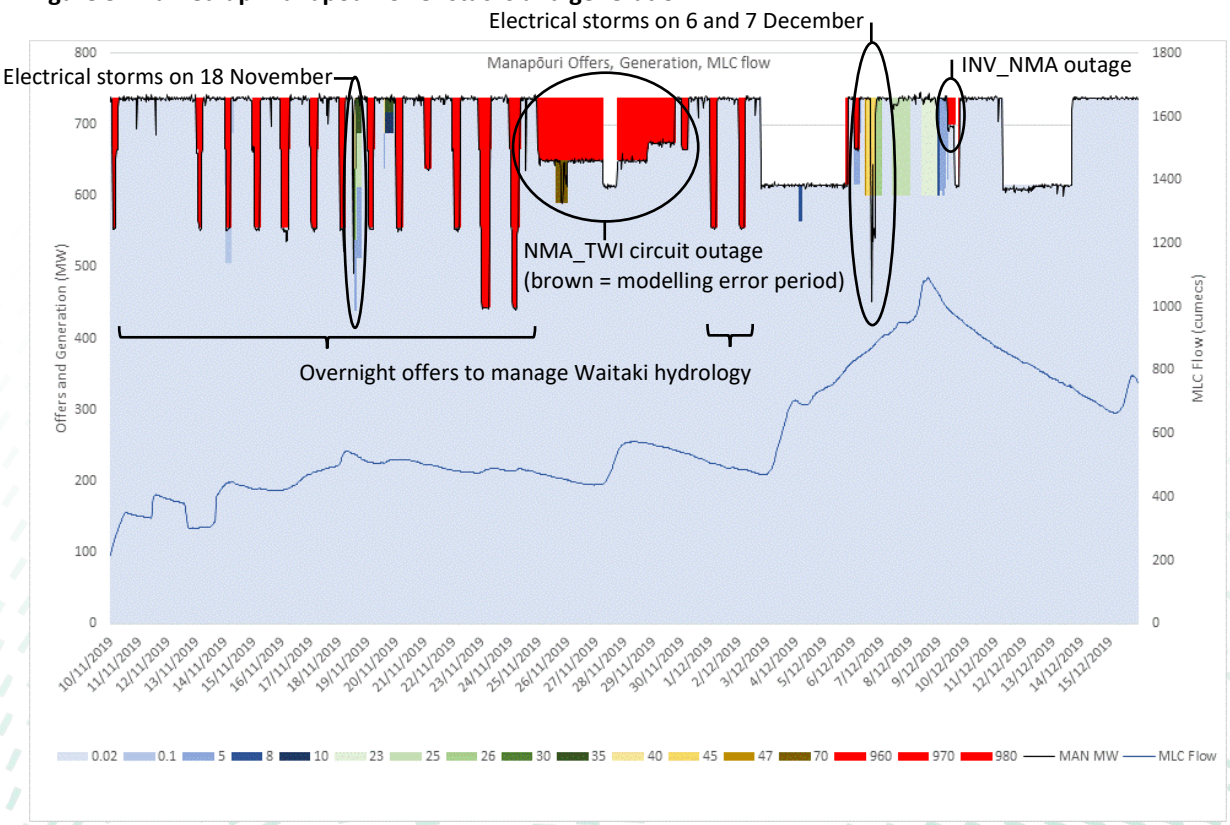
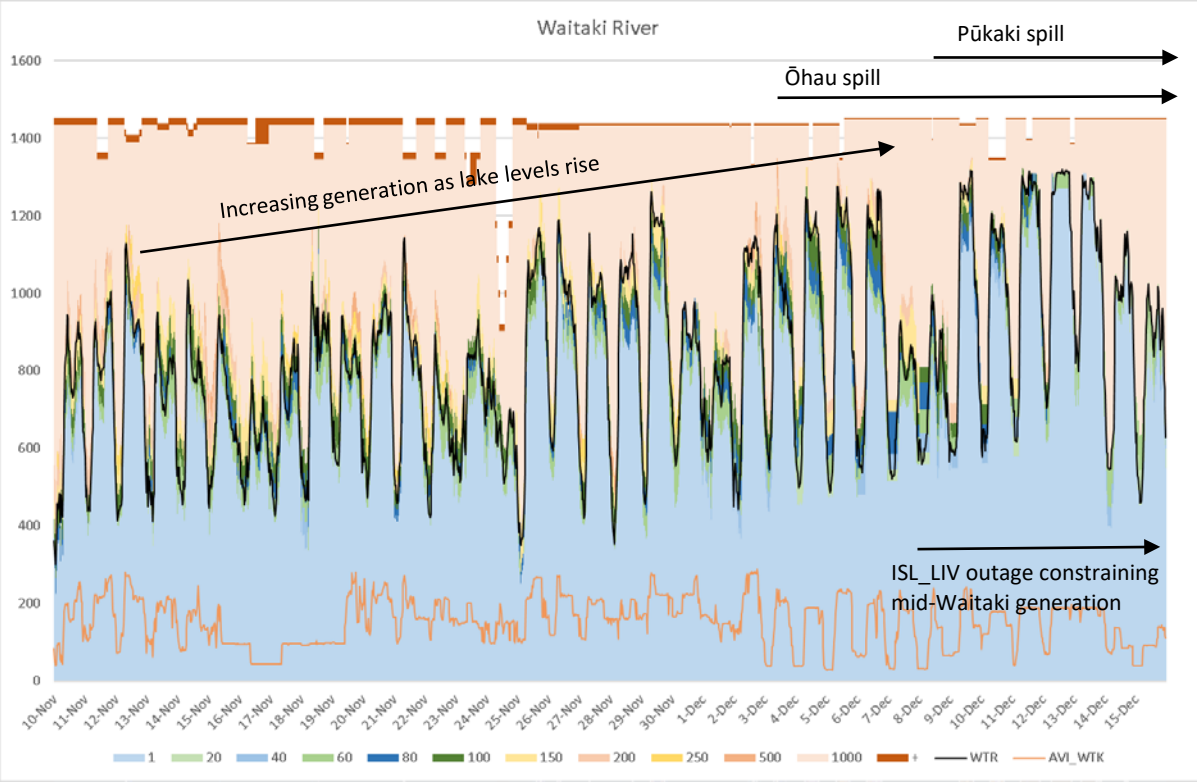


Figure 6: Marked up Waitaki offer stacks and generation



65. The complainants allege that all Meridian and Contact hydro generation from Manapōuri, Clyde, and Roxburgh while spilling should have been offered at $5/MWh. The complainants use vSPD to override offer prices at those locations to $5/MWh and allege that an additional 109 GWh of generation would have been dispatched from these schemes as a result. Later vSPD runs on the Authority's EMI website, are more complete and also factor in Waitaki generation at $5/MWh during Lake Pūkaki spill. The results from this vSPD run show that, had Waitaki, Manapōuri and Clutha generation all been offered at $5/MWh, Manapōuri and Clutha generation would have been displaced by Waitaki generation and that between 11 November and 15 December 2019 the market would only absorb approximately 60 GWh of extra hydro generation from Meridian and Contact combined (compared to the 1753 GWh of total Manapōuri, Waitaki, and Clutha generation over the period).

66. In fact, this alternate vSPD run has Meridian generating less than what we did in reality because Manapōuri generation is displaced by Contact generation that is further north and therefore electrically closer to major load centres. Realistically, additional hydro generation from any one of the South Island hydro stations would have largely displaced hydro generation from the others and simply shifted spill to another catchment.

Confidential information provided in this response

67. As with the Initial Response, parts of this letter are commercially sensitive, and we ask that the Authority preserves that confidentiality. In accordance with regulation 15(2) we request that the confidential information not be included in the investigator's report under regulation 19. We will provide the Authority separately with a copy of this letter with the commercially sensitive material redacted.

Next steps

68. Meridian strongly considers its conduct at all times during the relevant trading periods to have been appropriate and reasonable, within the safe harbours in clause 13.5B of the Code, and consistent with the HSOTC provisions in clause 13.5A of the Code.

69. We are happy to provide any further information required by the Authority for the purpose of its investigation. Please let us know if we can be of further assistance.

Yours sincerely

Chris Ewers

General Manager, Wholesale

Peter Wakefield

From: Peter Wakefield
Sent: Tuesday, 1 December 2020 4:06 PM
To: 'phill@haastenergy.com'; 'Al Yates'; Luke Blincoe; Steve O'Connor; 'darren.gilchrist@ojifs.com'; 'gary.holden@pulseenergy.co.nz'; Emily Acland; sam.fleming@meridianenergy.co.nz; 'Matt Ritchie'; Andrew Anderson (Andrew.Anderson@mercury.co.nz); Joycelyn Raffills
Subject: Settlement process for investigation into alleged breaches of clause 13.5A by Meridian Energy Limited
Attachments: Copy of Notice-of-investigation-report_1912MERI2(1264013.1).pdf; Copy of Letter to EA in response to HSOTC breach allegation - September 2020 (redacted version) (1283961.1).pdf

Dear Participants

For this investigation please refer to the following documents:

- the Regulation 16 notice notifying the investigation
- Meridian's redacted response to the Regulation 16 notice.

Settlement Process

Regulation 22 of the Electricity Industry (Enforcement) Regulations 2010 provides that the investigator must endeavour to effect an informal settlement on every matter under investigation between:

- the notifying participants – Haast Energy Trading Limited, Ecotricity Limited Partnership, Switch Utilities Limited (Vocus), Electric Kiwi Limited, Flick Energy Limited, Oji Fibre Solutions (NZ) Limited, and Pulse Energy Alliance LP
- the participant allegedly in breach –Meridian Energy Limited
- participants who join the investigation as affected parties – Genesis Energy Limited, Mercury NZ Limited, Nova Energy Limited and Todd Generation Taranaki Limited

Regulation 24 provides that if the alleged breach can be resolved by settlement it must be submitted to the Authority who may approve or reject the settlement. Regulation 23 provides for the situation where the alleged breach is not resolved by settlement requiring a report and recommendation to the Authority to decide on whether or not a formal complaint should be made under Regulation 30 to the Rulings Panel.

To commence the first stage of the process required under Regulation 24, please provide your settlement requirements by 11 December 2020 . Your responses will be circulated to provide the opportunity for further feedback by 18 December 2020.

I look forward to your responses.

Regards

Peter Wakefield
Senior Investigator

DDI: +64 4 460 8864
Mob: +64 21 392 715
Fax: +64 4 460 8879
Email: peter.wakefield@ea.govt.nz

Electricity Authority - Te Mana Hiko
Level 7, Harbour Tower, 2 Hunter Street
PO Box 10041
Wellington 6143

From: Phillip Anderson <phill@haastenergy.com>
Sent: Wednesday, 2 December 2020 10:22 AM
To: Peter Wakefield <Peter.Wakefield@ea.govt.nz>
Cc: Al Yates <alyates@ecotricity.co.nz>; Luke Blincoe <luke.blincoe@electrickiwi.co.nz>; Steve O'Connor <steve.oconnor@flickelectric.co.nz>; darren.gilchrist@ojifs.com; gary.holden@pulseenergy.co.nz; Emily Acland <Emily.Acland@vocusgroup.co.nz>; sam.fleming@meridianenergy.co.nz; Matt Ritchie <Matt.Ritchie@genesisenergy.co.nz>; Andrew Anderson (Andrew.Anderson@mercury.co.nz) <Andrew.Anderson@mercury.co.nz>; Joycelyn Raffills <jraffills@toddcorporation.com>; Robert Allen <robert@allenconsulting.nz>
Subject: Re: Settlement process for investigation into alleged breaches of clause 13.5A by Meridian Energy Limited

Hi Peter,

Could you please also provide these 2 documents which are referenced:

1. The Meridian letter of 14 February (the "initial response").

2. Sapere Research Group paper for Meridian titled "Economic review of Haast Energy claim that Meridian has breached the HSOTC rule and given rise to a UTS".

Kind regards,

Phill

On Tue, Dec 1, 2020 at 5:43 PM Peter Wakefield <Peter.Wakefield@ea.govt.nz> wrote:

> Dear Participants
>
> For this investigation please refer to the following documents:
>
> - the Regulation 16 notice notifying the investigation
> - Meridian's redacted response to the Regulation 16 notice.
>
> **Settlement Process**
>
> Regulation 22 of the Electricity Industry (Enforcement) Regulations 2010 provides that the investigator must endeavour to effect an informal settlement on every matter under investigation between:
>
> - the notifying participants – Haast Energy Trading Limited, Ecotricity Limited Partnership, Switch Utilities Limited (Vocus), Electric Kiwi Limited, Flick Energy Limited, Oji Fibre Solutions (NZ) Limited, and Pulse Energy Alliance LP
> - the participant allegedly in breach –Meridian Energy Limited
> - participants who join the investigation as affected parties – Genesis Energy Limited, Mercury NZ Limited, Nova Energy Limited and Todd Generation Taranaki Limited
>
> Regulation 24 provides that if the alleged breach can be resolved by settlement it must be submitted to the Authority who may approve or reject the settlement. Regulation 23 provides for the situation where the alleged breach is not resolved by settlement requiring a report and recommendation to the Authority to decide on whether or not a formal complaint should be made under Regulation 30 to the Rulings Panel.

Peter Wakefield

From: Sam Fleming <Sam.Fleming@MeridianEnergy.co.nz>
Sent: Wednesday, 2 December 2020 3:13 PM
To: Peter Wakefield
Subject: RE: [EXTERNAL] FW: Settlement process for investigation into alleged breaches of clause 13.5A by Meridian Energy Limited

Hi Peter

I note that the letter of 14 February 2020 was not provided "for circulation", it was provided in response to your fact finding letter and we marked confidential information to help you comply with Regulation 15(2), which says "an investigator who requires an industry participant to disclose information must also require the participant to identify which of that information the participant—

(a) considers to be confidential; and
(b) considers should not be included in the investigator's report under regulation 19."

We did the same with our response to the notice of investigation.

There is nothing commercially sensitive in the redacted letter of 14 February 2020 or the Sapere report attached to that letter. However, the Enforcement Regulations set out a process expectation that the Authority, and you as investigator, will keep information provided or disclosed confidential (see extracts below). Therefore, you need to decide yourself under the Enforcement Regulations whether release of these documents is "required to enable the Authority or an investigator or other person to carry out their obligations and duties under the Code or these regulations; or is otherwise compelled by law." Meridian cannot make that decision.

To the extent you do decide to release these documents to the parties to this investigation, we would request you inform recipients that the documents are provided for the purposes of this investigation and settlement process only and subject to a commitment to keep the information confidential.

Kind regards

Sam Fleming – Manager Regulatory and Government Relations
Meridian Energy Limited
Level 2, 55 Lady Elizabeth Lane
PO Box 10840, Wellington 6143, New Zealand
DDI. 04 803 2581 M. 021 732 398

Peter Wakefield

From: Peter Wakefield
Sent: Thursday, 3 December 2020 3:54 PM
To: Phillip Anderson; Al Yates; Luke Blincoe; Steve O'Connor; darren.gilchrist@ojifs.com; gary.holden@pulseenergy.co.nz; sam.fleming@meridianenergy.co.nz; Joycelyn Raffills; Andrew Anderson (Andrew.Anderson@mercury.co.nz); Matt Ritchie; ben.winslade@vocusgroup.co.nz
Subject: RE: Settlement process for investigation into alleged breaches of clause 13.5A by Meridian Energy Limited [ElAut-ELCOMM.FID43970]
Attachments: Copy of Letter to EA in response to HSOTC breach allegation - 14 02 20 Final Redacted (003)(1284018.1).pdf; Copy of Sapere - Economic review of Haast Energy complaint(1284020.1).pdf

Dear Participants

Please find attached the documents, requested by Haast Energy, that are referred to in Meridian's response to the notice of investigation. Please note these documents are provided for the purposes of this investigation only and on the basis that they are kept confidential.

Regards

Peter Wakefield
Senior Investigator

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Email: peter.wakefield@ea.govt.nz

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PO Box 10041
Wellington 6143
New Zealand
www.ea.govt.nz

Peter Wakefield

From: Robert Allen <robert@allenconsulting.nz>
Sent: Thursday, 10 December 2020 5:07 PM
To: Compliance Electricity Authority; Peter Wakefield
Cc: Luke Blincoe; Phillip Anderson; Huia Burt; eleanor.briggs@electrickiwi.co.nz Briggs; Ben Winslade; Quentin Reade; O'Connor, Steve; maryann.mitchell@flickelectric.co.nz; Al Yates; Darren Gilchrist - Oji FS; Terry Skiffington
Subject: Settlement requirements: investigation into alleged breaches of clause 13.5A by Meridian Energy Limited
Attachments: Haast OJI + Independent Retailers - HSTOC Settlement Requirements - 2020 12 10.pdf

Hi Peter,

Please find attached a response to your 1 December request for settlement requirements from Ecotricity, Electric Kiwi, Flick Electric, Haast Energy Trading, Oji Fibre Solutions and Vocus.

Please let me know if you have any queries etc.

Regards,

Robert Allen
Allen Consulting
+64 21725536

10 December 2020

Peter Wakefield
Senior Investigator
Electricity Authority
Wellington

By e-mail: compliance@ea.govt.nz, peter.wakefield@ea.govt.nz

Dear Peter,

Settlement requirements for alleged HSOTC breach by Contact and Meridian

Ecotricity, Electric Kiwi, Flick Electric, Haast Energy Trading (Haast), Oji Fibre Solutions and Vocus (the independents) welcome the opportunity to outline our settlement requirements, in relation to the alleged breach of the High Standard of Trading Conduct (HSOTC) rules (clause 13.5A of the Electricity Industry Participation Code 2010) by Contact Energy and Meridian.[1]

For the sake of clarity, we agree with the investigator that the relevant time-periods for the alleged HSOTC breaches are between:

- 11 November 2019 to 28 December 2019 for Contact Energy;[2] and
- 10 November 2019 and 16 January 2020 for Meridian.[3]

These dates align with our own separate and independent modelling, which was undertaken without knowledge of the time periods the investigator had established.[4]

We are open to reaching a settlement on these matters

Given the seriousness of the alleged breach of the HSOTC rules we believe the onus should be on Contact and Meridian to propose any settlement(s).

For the Settlement Offer(s) to have any useful precedent value, they would need to confirm there was a breach of the HSOTC rules, and provide details of how Contact's/Meridian's conduct was in breach of the HSOTC rules.

Contact/Meridian should acknowledge their trading conduct wasn't of a high standard and resulted in higher aggregate water spill, higher CO2 emissions and other adverse environmental factors (due to the consequent unnecessary running of Huntly etc), and higher spot prices than would otherwise have occurred.

[1] https://www.ea.govt.nz/assets/dms-assets/27/27201Notice-of-investigation-report-1912CTCT1-1264011-1.PDF and https://www.ea.govt.nz/assets/dms-assets/27/27200Notice-of-investigation-report-1912MERI2-1264013-1.PDF
[2] NOTICE UNDER REGULATION 16 OF THE ELECTRICITY INDUSTRY (ENFORCEMENT) REGULATIONS 2010, 12 August 2020 at: https://www.ea.govt.nz/assets/dms-assets/27/27201Notice-of-investigation-report-1912CTCT1-1264011-1.PDF
[3] NOTICE UNDER REGULATION 16 OF THE ELECTRICITY INDUSTRY (ENFORCEMENT) REGULATIONS 2010, 12 August 2020 at: https://www.ea.govt.nz/assets/dms-assets/27/27200Notice-of-investigation-report-1912MERI2-1264013-1.PDF
[4] See our submission and cross-submission in response to the Authority's preliminary UTS decision.

The Settlement Offer(s) should include undertakings – including changes to training and internal processes and policies – to ensure there aren't any further breaches of the HSOTC rules. We would give extra weight to internal changes that have already been put in place (if any), noting the time between the alleged breaches and the settlement process.[5]

The Settlement Offer(s) should also include compensation for affected parties, which includes recognition of the time and resources that are involved in making an HSOTC claim, and a 'penalty' element. Any settlement should ensure Contact/Meridian does not financially benefit from the alleged breaches. It would be reasonable to take into account any remedy decision the Authority makes in relation to the related UTS allegations.

Meridian's position on the Authority's decision on the 2 June 2016 HSOTC highlights the importance that any settlement confirms there was a breach

In considering any potential Settlement Offer, consideration should be given to Meridian's commentary in relation to its 2 June 2016 breach of the HSOTC rules.

Meridian unequivocally disputed "The Authority held that it [Meridian] was in breach", and dismissed the Authority's letter of warning as no more than "its opinion". According to Meridian the letter "does not amount to a finding of a Code breach", and "carries no legal weight as the Authority has no statutory function or responsibility when it comes to deciding whether the Code has been breached". Meridian "did not and does not agree with the Authority's comments in respect of 2 June 2016 and made a public media release at the time saying as much".[6] This was despite the Notification of the Authority's decision issued under regulation 29 of the Electricity Industry (Enforcement) Regulations 2010, that "The Authority decided Meridian's trading conduct on 2 June 2016 was not of a high standard and, therefore, breached clause 13.5A(1)".

Meridian has reconfirmed these positions, including in "Meridian's response to notice of investigation of breach of clause 13.5A of the Code", 23 September 2020.

We consider there is similar risk in relation to any potential Settlement Offers. The precedent value will be substantially undermined if the question of whether there was a HSOTC breach remains in dispute or unaddressed.

Contact and Meridian's responses to their respective notices of investigation of breach of clause 13.5A of the Code are inadequate

We consider that the limited nature of Contact and Meridian's responses to the notices of investigation, despite the seriousness of the allegations, and the potential damage the alleged breaches could do to the wholesale electricity market, and their own reputations, highlights they lack any strong basis for their respective denials that they breached the HSOTC rules. By way of illustration:

- Meridian disputes the level of unnecessary hydro spill that was caused by the alleged breach:

[5] Meridian has made oblique reference to changes in its internal processes or policies: "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": Meridian, Meridian submission, Preliminary decision on claim of any undesirable trading situation Supplementary consultation, 27 November.
[6] Meridian, MDAG review of the high standard of trading conduct provisions, 4 May 2020.

> "The complainants allege that all Meridian and Contact hydro generation from Manapōuri, Clyde, and Roxburgh while spilling should have been offered at $5/MWh. The complainants use vSPD to override offer prices at those locations to $5/MWh and allege that an additional 109 GWh of generation would have been dispatched from these schemes as a result. Later vSPD runs on the Authority's EMI website … show that, had Waitaki, Manapōuri and Clutha generation all been offered at $5/MWh, Manapōuri and Clutha generation would have been displaced by Waitaki generation and that between 11 November and 15 December 2019 the market would only absorb approximately 60 GWh of extra hydro generation from Meridian and Contact combined …"

The basis of our complaint was Contact and Meridian's respective offer strategies resulted in unnecessary hydro spill and higher spot prices than should have occurred in workably competitive circumstances. Debate over the actual level of unnecessary spill doesn't change whether there was a breach, only the severity of it.[7]

- Meridian relies heavily on the claim that "the sole argument put forward by the complainants is that Meridian's conduct did not meet that standard because it did not offer at SRMC". Meridian is attempting to dance on the head of a pin. The claim there was a breach of the HSOTC rules does not hinge on the offers deviating from SRMC but the extent to which prices deviated from SRMC ("by too much or for too long"[8]). For example, the complaint included the following statement which Meridian quoted:

> "Meridian has offered in tranches of Manapouri hydro generation at well above its SRMC even though it is spilling water at the same time. It was able to do this by misusing its market power. For example:
> - From 13 November to 9 December generation of 100MW to 200MW+ at Manapouri was frequently made available only at prices above $450 during off-peak periods, and from 6 December water has also been priced up during peak periods.
> - In the same period, Meridian has exercised its market power through actively managing its Waitaki offers prior to gate closure to ensure overnight Benmore prices are maintained in a $50 to $70 range." [footnotes removed, emphasis added]

- In addition to Meridian's 'Aunt Sally' type claim that "the sole argument put forward by the complainants is that Meridian's conduct did not meet that standard because it did not offer at SRMC", Meridian demonstrates a lack of understanding about the relationship between SRMC and LRMC e.g.:

> "The suggestion by the complainants that offers in every trading period should be at SRMC but that over a longer period prices might somehow reflect LRMC is illogical. Each year is made up of individual trading periods and if offers in each trading period must be at SRMC then it is more difficult for generators to recover their fixed costs."

> "… it is necessary for spot prices to on average sit above SRMC and at a level which induces sustainable entry."

These statements are surprising; Meridian should understand that if prices are set at SRMC they will average LRMC in the long-run in a competitive market. The Meridian statements also contradict Meridian's previous, and economically sound, commentary on SRMC and LRMC e.g.:

> "in the absence of any shortage of energy or capacity, there is no basis for using estimates of the LRMC of new entry generation and the cost of demand-side response, rather the "right" price would be SRMC or something closer to it"[9]

> "… it is artificial to focus on LRMC of new entry generation … In the absence of energy or capacity shortage, competitive prices should approximate SRMC not LRMC."[10]

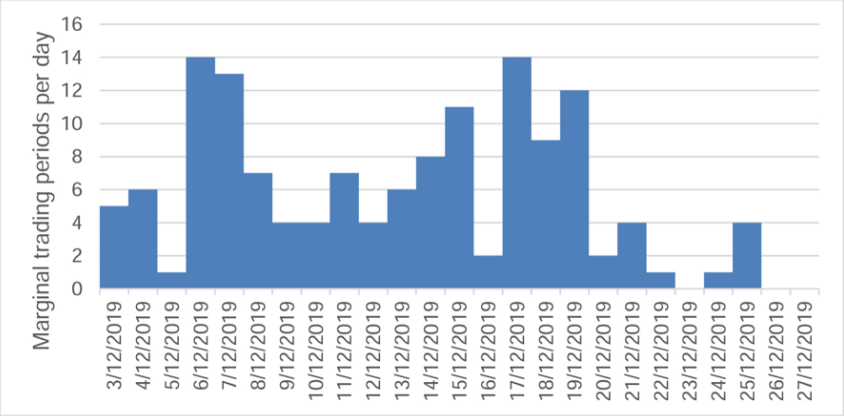
[7] We also provided submission that the Authority's UTS decision modelling understated the level of unnecessary spill.
[8] WELLINGTON INTERNATIONAL AIRPORT LTD & ORS v COMMERCE COMMISSION [2013] NZHC [11 December 2013], paragraph [15].
[9] Meridian, Draft Decision regarding alleged UTS on 26 March 2011, 13 May 2011.
[10] Meridian, Draft Decision regarding alleged UTS on 26 March 2011, 13 May 2011.

- Meridian and Sapere claim determining when Meridian was pivotal demonstrates when they had market power.[11] They then make a leap of logic and suggest that when Meridian is not pivotal they do not have significant market power. This is analogous to comparing a monopoly with a concentrated oligopoly, and arguing the members of the concentrated oligopoly have no market power. At all times Meridian and Contact together were providing the vast majority of generation in both the Lower South Island and South Island regions. Because both Meridian and Contact had significant market power throughout the period, any test regarding what market outcomes should have been expected in the absence of significant market power needs to lean on a workable competition assumption. This implies that prices should not be expected to depart from SRMC levels by too much or for too long.

- Both Contact and Meridian claim that the safe-harbour provisions applied. This is despite, by way of example, clear evidence their offer strategies, both individually and jointly, resulted in substantial increases in spot prices (contrary to clause 13.5B1(c)(i)).[12]

  Meridian has also provided evidence in submission that Contact was marginal (and that "Tranches of generation offers do not need to be marginal to have an influence on prices") and that "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)":[13]

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



- Contact submitted that it "denies the allegation made by the complainants set out in the investigation notice that "Contact has repeatedly offered zero-value water into the market at prices greater than $50 [per MWh] to prop up spot prices, intentionally spilling more water than necessary". There is evidence there was unnecessarily spill and Contact's offer strategy resulted in higher spot prices.[14] We have also submitted in response to Contact's claim that it needed to spill water/offer in at high prices.[15]

- We are not sure why Meridian has referenced MDAG's review of the HSOTC rules. What matters, in terms of the current investigations, is the HSOTC rules at the time of the alleged breach, and not potential future changes to the rules.

[11] Contact adopt a similar approach, calculating that they were only pivotal 104 out of 2,304 trading periods.
[12] See, for example, the Authority's preliminary UTS decision, and our submission and cross-submission in response.
[13] Meridian, Meridian submission, Preliminary decision on claim of any undesirable trading situation Supplementary consultation, 27 November.
[14] See, for example, the Authority's preliminary UTS decision, and our submission and cross-submission in response.
[15] See our submission and cross-submission in response to the Authority's preliminary UTS decision.

Constraints relating to Contact's spill gates

In Contact's submission in response to the Authority's Supplementary UTS consultation,[16] Contact dismissed that the must run dispatch auction (MRDA) was an appropriate tool to manage plant constraints such as at spill gates. Contact asserted that:

> "Regardless of MRDA rights when the Lower South Island security constraint binds, the System Operator must back off generation in the region to bring that part of the grid back to a secure state, effectively putting generation in the region on the margin."

Contact conveniently ignores that their generation is not the only generation located in the Lower South Island region and Meridian has not raised any similar issues with their own Manapouri Power Station. If Contact bid its constrained plant into the MRDA then Manapouri or Contact's unconstrained plant would be on the margin and receive dispatch instructions from the System Operator.

Similarly, Contact dismissed the use of lower ramp rates as:

> "Lowering ramp rates, as suggested by Haast, to a level that minimises marginal running also hinders the System Operator's ability to manage security violations on the grid and results in running hydro generators within rough running ranges for extended periods of time…"

Ramp rates exist for participants to signal to the System Operator what the safe operating capability of their plant is. If Contact was to adjust ramp rates to reflect the safe operation of their spill gates (being part of the generation plant) they would be using ramp rates exactly as intended by the Code. The System Operator's ability to securely dispatch the power system is enhanced not diminished when participants provide accurate information to them regarding the capability of their plant. Contact's assertion that lower ramp rates inherently means rough running of plant is a red herring. There is no fundamental reason why specifying a ramp rate higher than the plant is safely capable of performing will lead to less rough running.

Additionally, in Meridian's response to the HSTOC breach investigation, Meridian claim the System Operator will always prefer Contact's generation in the Lower South Island and put Manapouri on the margin if the plant is offered at the same price:

> "…In fact, this alternate vSPD run has Meridian generating less than what we did in reality because Manapōuri generation is displaced by Contact generation that is further north and therefore electrically closer to major load centres…"

This implies Contact could have offered its generation at $0.01 knowing that even if Meridian did the same at Manapouri, Clutha generation would not be on the margin.

We do not believe Contact has presented any credible explanation as to why they needed to offer significant tranches of Clutha generation at high prices in order to manage spill gate constraints. There appears at least 3 alternative approaches which wouldn't have resulted in unnecessary spill. Contact's chosen strategy had the convenient consequence of increasing spot prices by tens of millions of dollars and the Authority should scrutinise Contact's after the fact explanation for its trading conduct in this context.

[16] Contact, Supplementary consultation on the Preliminary UTS decision, November 2020, points 14-16.

Concluding remarks

We are open to reaching a settlement in relation to Contact and Meridian's alleged HSOTC breaches. Any settlement needs to acknowledge there was a breach and the nature of the breach – including unnecessarily spill of water, higher CO2 emissions and other adverse environmental factors (due to the consequent unnecessary running of Huntly etc), and higher spot prices than would otherwise have occurred.

We remain hopeful Contact and Meridian will reflect on how their alleged breaches of the HSOTC rules (and related alleged UTS breach) has harmed, and is harming, their reputations, the harm it has caused the New Zealand electricity market, the harm and detriment to its competitors and other market participants, and most importantly the harm to consumers.[17] Meridian should reflect on how its actions which resulted in needless coal burning sits with its corporate positioning and branding on the environment and climate change.

In 'blowing the whistle' on Contact and Meridian, we have presented them with the opportunity to 'do the right thing'. The settlement process is an opportunity to put a 'line in the sand' and provide assurances the alleged conduct won't happen again, including publishing how their internal policies/processes have changed. Based on Contact and Meridian's defences of their actions, including using trading to manage locational risk, our expectation is the conduct will continue to be repeated.

Yours sincerely,

Al Yates Chief Executive alyates@ecotricity.co.nz	Luke Blincoe Chief Executive luke.blincoe@electrickiwi.co.nz	Steve O'Connor Chief Executive Officer steve.oconnor@flickelectric.co.nz
Phillip Anderson Managing Director phill@haastenergy.com	Terry Skiffington Chief Operating Officer terry.skiffington@ojifs.com	Quentin Reade Head of Communications quentin.reade@vocusgroup.co.nz

[17] Consistent with the independent retailers' submission on the Consumer Care Guidelines, while the Consumer Care project and UTS/HSOTC investigations are notionally distinct, they are all critical to ensuring consumers are protected and electricity supply is affordable. If prices in the wholesale electricity market are higher than they should be then retail tariff prices will be higher than they should be and there will be more payment difficulties.

Nova Energy Limited
PO Box 10141, Wellington 6143
www.novaenergy.co.nz

Speak to one of our team
0800 668 236
7.30am to 7pm – Monday to Friday
Or email us
info@novaenergy.co.nz

11 December 2020

Peter Wakefield
Senior Investigator
Electricity Authority
By email: Peter.Wakefield@ea.govt.nz

Dear Peter

Settlement process for investigation into alleged breaches of clause 13.5a by Contact Energy Limited and Meridian Energy Limited

We refer to your email of 1 December requesting participants to the proceedings referred to above to provide their settlement requirements. Nova Energy Limited (Nova) and Todd Generation Taranaki Limited's (TGT) concerns lie in the outcome of the settlement process.

Nova and TGT relied on spot price forecasts to make their operating decisions during the period of concern, including the purchasing of gas for its generation plants. Nova and TGT are concerned that the outcome of the settlement or other enforcement process may lead to a reset of the final prices to a level below the costs of operating their peaker and co-generation plants at the relevant times.

In the event that the settlement process results in a price reset which causes Nova and/or TGT to suffer loss, Nova and/or TGT are seeking to be compensated in terms of recovering those costs incurred in reliance on the spot prices.

Please contact Joycelyn Raffills at jraffills@toddcorporation.com if you have any questions.

Yours sincerely

Liesbeth Koomen
General Counsel

E info@toddgeneration.co.nz
P +64 4 472 2970
F +64 4 472 2474
PO Box 3141 Wellington 6140 | New Zealand

Peter Wakefield

From: Peter Wakefield
Sent: Friday, 11 December 2020 5:38 PM
To: 'phill@haastenergy.com'; 'Al Yates'; Luke Blincoe (luke.blincoe@electrickiwi.co.nz); 'Steve O'Connor'; 'darren.gilchrist@ojifs.com'; 'gary.holden@pulseenergy.co.nz'; 'Chris Abbott'; 'Matt Ritchie'; Andrew Anderson (Andrew.Anderson@mercury.co.nz); 'Joycelyn Raffills'; 'ben.winslade@vocusgroup.co.nz'; Robert Allen; 'Sam Fleming'
Subject: RE: Settlement process for investigation into alleged breaches of clause 13.5A by Contact Energy Limited and Meridian Energy Limited
Attachments: Haast OJI + Independent Retailers - HSTOC Settlement Requirements - 2020 12 10(1285210.1).pdf; Todd Generation Nova Energy HSOTC letter 111220(1285208.2).pdf; Contact letter to EA on HSOTC settlement 12 December 2020(1285206.1).pdf

Dear Participants

Please find attached the settlement requirement responses received from:

- Haast Energy Trading Limited, Ecotricity Limited Partnership, Switch Utilities Limited (Vocus), Electric Kiwi Limited, Flick Energy Limited, Oji Fibre Solutions (NZ) Limited, and Pulse Energy Alliance LP
- Contact Energy Limited
- Nova Energy Limited and Todd Generation Taranaki Limited

Mercury NZ Limited and Genesis Energy Limited have advised they have no settlement requirements.
Meridian Energy Limited as yet has not responded.

Please provide your feedback on these responses by 18 December 2020.

Regards

Peter Wakefield
Senior Investigator

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Mob: +64 21 392 715
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Peter Wakefield

From: Sam Fleming <Sam.Fleming@MeridianEnergy.co.nz>
Sent: Monday, 14 December 2020 9:43 AM
To: Peter Wakefield
Subject: RE: [EXTERNAL] RE: Settlement process for investigation into alleged breaches of clause 13.5A by Contact Energy Limited and Meridian Energy Limited

Hi Peter

Just confirming that we did not respond because you asked us to provide settlement requirements. Meridian has none.

For the avoidance of doubt, Meridian considers its trading to be consistent with the HSOTC provisions in the Code. For that reason, Meridian is not prepared to settle.

Kind regards

Sam Fleming – Manager Regulatory and Government Relations
Meridian Energy Limited
Level 2, 55 Lady Elizabeth Lane
PO Box 10840, Wellington 6143, New Zealand
DDI. 04 803 2581 M. 021 732 398

From: Peter Wakefield <Peter.Wakefield@ea.govt.nz>
Sent: Friday, 11 December 2020 5:38 pm
To: 'phill@haastenergy.com' <phill@haastenergy.com>; 'Al Yates' <alyates@ecotricity.co.nz>; Luke Blincoe (luke.blincoe@electrickiwi.co.nz) <luke.blincoe@electrickiwi.co.nz>; Steve O'Connor <steve.oconnor@flickelectric.co.nz>; 'darren.gilchrist@ojifs.com' <darren.gilchrist@ojifs.com>; 'gary.holden@pulseenergy.co.nz' <gary.holden@pulseenergy.co.nz>; Chris Abbott <Chris.Abbott@contactenergy.co.nz>; Matt Ritchie <Matt.Ritchie@genesisenergy.co.nz>; Andrew Anderson (Andrew.Anderson@mercury.co.nz) <Andrew.Anderson@mercury.co.nz>; Joycelyn Raffills <jraffills@toddcorporation.com>; ben.winslade@vocusgroup.co.nz; Robert Allen <robert@allenconsulting.nz>; Sam Fleming <Sam.Fleming@MeridianEnergy.co.nz>
Subject: [EXTERNAL] RE: Settlement process for investigation into alleged breaches of clause 13.5A by Contact Energy Limited and Meridian Energy Limited

Dear Participants

Please find attached the settlement requirement responses received from:

- Haast Energy Trading Limited, Ecotricity Limited Partnership, Switch Utilities Limited (Vocus), Electric Kiwi Limited, Flick Energy Limited, Oji Fibre Solutions (NZ) Limited, and Pulse Energy Alliance LP
- Contact Energy Limited
- Nova Energy Limited and Todd Generation Taranaki Limited

Mercury NZ Limited and Genesis Energy Limited have advised they have no settlement requirements.
Meridian Energy Limited as yet has not responded.

Peter Wakefield

From: Peter Wakefield
Sent: Monday, 14 December 2020 10:57 AM
To: 'phill@haastenergy.com'; 'Al Yates'; Luke Blincoe (luke.blincoe@electrickiwi.co.nz); Steve O'Connor; 'darren.gilchrist@ojifs.com'; 'gary.holden@pulseenergy.co.nz'; Chris Abbott; Matt Ritchie; Andrew Anderson (Andrew.Anderson@mercury.co.nz); Joycelyn Raffills; ben.winslade@vocusgroup.co.nz; Robert Allen; Sam Fleming
Subject: RE: Settlement process for investigation into alleged breaches of clause 13.5A by Contact Energy Limited and Meridian Energy Limited
Attachments: RE: [EXTERNAL] RE: Settlement process for investigation into alleged breaches of clause 13.5A by Contact Energy Limited and Meridian Energy Limited

Dear Participants

Please find attached the response from Meridian Energy Limited.

Regards

Peter Wakefield
Senior Investigator

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Mob: +64 21 392 715
Fax: +64 4 460 8879
Email: peter.wakefield@ea.govt.nz

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Wellington 6143
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Peter Wakefield

From: Robert Allen <robert@allenconsulting.nz>
Sent: Thursday, 17 December 2020 5:20 PM
To: Peter Wakefield; Compliance Electricity Authority
Cc: Luke Blincoe; eleanor.briggs@electrickiwi.co.nz Briggs; Huia Burt; Phillip Anderson; O'Connor, Steve; maryann.mitchell@flickelectric.co.nz; Al Yates; Quentin Reade; Ben Winslade; Terry Skiffington; Darren Gilchrist - Oji FS
Subject: Settlement requirements: investigation into alleged breaches of clause 13.5A by Meridian Energy Limited
Attachments: Haast OJI + Independent Retailers - HSTOC Settlement Requirements - Response to other submissions - 2020 12 17.pdf

Hi Peter,

Thanks again for the opportunity to engage in the settlement process.

As requested, please find attached the joint submission of Ecotricity, Electric Kiwi, Flick Electric, Haast Energy Trading, Oji Fibre Solutions and Vocus (the independents) in response to the other submissions in relation to settlement requirements.

Kind regards,

Robert Allen
Allen Consulting
+64 21725536

17 December 2020

Peter Wakefield
Senior Investigator
Electricity Authority
Wellington

By e-mail: compliance@ea.govt.nz, peter.wakefield@ea.govt.nz

Dear Peter,

Response to settlement requirement submissions in relation to the alleged HSOTC breach by Contact and Meridian

Ecotricity, Electric Kiwi, Flick Electric, Haast Energy Trading (Haast), Oji Fibre Solutions and Vocus (the independents) have engaged in the settlement process in good faith and are disappointed by Contact's response and Meridian's failure to do the courtesy of responding or even acknowledging the Authority Investigator's request.[1]

It is clear Contact or Meridian are not prepared to settle. It is imperative, therefore, that the matter is fully investigated, and an Investigator's report on alleged breaches of clause 13.5A is produced as soon as reasonably practable. The Authority needs to demonstrate serious breaches of the Code will not be tolerated, and the Code will be enforced without fear or favour.

We reiterate the importance of the precedent of a finding that there was a breach; particularly given the seriousness of the matter.

We are clear in our view that Contact and Meridian's trading conduct wasn't of a high standard and resulted in higher aggregate water spill, higher CO2 emissions and other adverse environmental factors (due to the consequent unnecessary running of Huntly etc), and higher spot prices than would otherwise have occurred.

We also reiterate Meridian's response to the Authority's decision on the 2 June 2016 HSOTC highlights the importance of a finding that confirms there was a breach.

For the avoidance of doubt, the allegation of a breach of the Code was made on 12 December 2019 just over a year ago and the Code/ rules that applied then are the rules that are relevant. While we do not consider potential reform or amendment to the existing HSOTC rules to be a relevant factor,[2] the existing and proposed HSOTC rules are substantially overlapping. The decision will have important precedent value under either version of the rules. It is clear from the MDAG work, including the Panel case studies, that Contact and Meridian would be in breach of both the existing rules and MDAG's proposed HSOTC rules.

[1] Meridian eventually provided a response on 14 December following circulation of the responses.
[2] The Authority has indicated it has accepted MDAG's recommendations, and will consult on the proposed new trading conduct rules early 2021. We note MDAG's proposals are contentious and there was no industry consensus the changes should be adopted.

The extent to which the Code is complied with is a function of how well the rules are monitored and enforced

The Authority's compliance monitoring and enforcement has been an ongoing area of concern. How the Authority deals with this breach allegation is critical for trust and confidence in the extent to which Code rules will be complied with and enforced.

We agree with MDAG that the Authority should "Improve deterrence" which includes "more rigorous compliance monitoring by the Authority, particularly when competition is weak or absent". We also agree "Achieving the Authority's policy objective … will depend crucially on improved monitoring and enforcement".[3] We also note and agree with MDAG that:

> "The evaluation panels independently recommended that the Authority prioritise monitoring and enforcement. The evaluation panels pointed out that any rule that seeks to prevent undesirable trading conduct needs to be supported by strong deterrence signals. … We concur with the evaluation panels and recommend that the Authority undertake more frequent and more rigorous monitoring of participants' behaviour, particularly when competition is weak or absent."

> "A key tenet to the effectiveness of any rule or law is the achievement of deterrence. Effective deterrence is achieved through the credible threat of enforcement of that rule or law. That credibility is principally derived from the actual prosecution of breaches and the subsequent application of sanctions against those found to be in breach".

We reiterate from Ecotricity, Electric Kiwi, Flick Electric, Pulse and Vocus' recent 2021/22 levy-funded appropriations submission that:[4]

> *"Based on submissions to the Authority – for example, in relation to HSOTC reform – we consider that there would be widespread support for this. At present, we consider breach investigations are taking longer than they should,[5] and there is prima facie evidence of potential Code breaches that have not been investigated."*

Concluding remarks

The settlement process provided Contact and Meridian with an opportunity to put a 'line in the sand' and provide assurances the alleged conduct won't happen again, including publishing how their internal policies/processes have changed. This has clearly been rejected.

It is imperative now that the matter is fully investigated, and an investigator's report on alleged breaches of clause 13.5A is produced as soon as reasonably practable.

The way the Authority deals with this matter goes to the very heart of its strategic ambitition to build trust and confidence:[6]

> *"… it is increasingly important to actively build trust and confidence in the industry and regulation through greater transparency, understanding and improved behaviours. Consumers expect participants to be held to account to rules designed to provide long-term benefit. Participants require a stable investment framework and regulatory environment to enable decision making that will deliver further benefit to consumers.*

> *"As regulator, we need to continue using markets and our compliance function to create the right incentives for progress, work with participants to ensure better practice by all of industry and enhance consumers' and stakeholders' understanding of the electricity industry and how it delivers benefit."*

[3] MDAG, REVIEW OF THE TRADING CONDUCT PROVISIONS RECOMMENDATIONS PAPER, published 15 December 2020.
[4] Reflected, for example, in examples provided by MDAG as part of its HSOTC review.
[5] For example, the investigation into Genesis' trading conduct between 6 and 9 August 2018: https://www.ea.govt.nz/assets/dms-assets/25/25116Notice-of-investigation-Genesis-Energy-Limited-1.pdf
[6] https://www.ea.govt.nz/assets/dms-assets/27/27020Statement-of-Intent-2020-2024.pdf

Yours sincerely,

Al Yates Chief Executive alyates@ecotricity.co.nz	Luke Blincoe Chief Executive luke.blincoe@electrickiwi.co.nz	Steve O'Connor Chief Executive Officer steve.oconnor@flickelectric.co.nz
Phillip Anderson Managing Director phill@haastenergy.com	Terry Skiffington Chief Operating Officer terry.skiffington@ojifs.com	Quentin Reade Head of Communications quentin.reade@vocusgroup.co.nz

Peter Wakefield

From: Andrew Anderson <Andrew.Anderson@mercury.co.nz>
Sent: Friday, 18 December 2020 9:43 AM
To: Peter Wakefield
Subject: RE: Settlement process for investigation into alleged breaches of clause 13.5A by Contact Energy Limited and Meridian Energy Limited

Peter

Mercury have no comments with respect to the settlement requirements.

Rgds Andy

From: Peter Wakefield <Peter.Wakefield@ea.govt.nz>
Sent: Friday, 11 December 2020 5:38 PM
To: 'phill@haastenergy.com' <phill@haastenergy.com>; 'Al Yates' <alyates@ecotricity.co.nz>; Luke Blincoe (luke.blincoe@electrickiwi.co.nz) <luke.blincoe@electrickiwi.co.nz>; Steve O'Connor <steve.oconnor@flickelectric.co.nz>; 'darren.gilchrist@ojifs.com' <darren.gilchrist@ojifs.com>; 'gary.holden@pulseenergy.co.nz' <gary.holden@pulseenergy.co.nz>; Chris Abbott <Chris.Abbott@contactenergy.co.nz>; Matt Ritchie <Matt.Ritchie@genesisenergy.co.nz>; Andrew Anderson <Andrew.Anderson@mercury.co.nz>; Joycelyn Raffills <jraffills@toddcorporation.com>; ben.winslade@vocusgroup.co.nz; Robert Allen <robert@allenconsulting.nz>; sam.fleming@meridianenergy.co.nz
Subject: RE: Settlement process for investigation into alleged breaches of clause 13.5A by Contact Energy Limited and Meridian Energy Limited

Dear Participants

Please find attached the settlement requirement responses received from:

- Haast Energy Trading Limited, Ecotricity Limited Partnership, Switch Utilities Limited (Vocus), Electric Kiwi Limited, Flick Energy Limited, Oji Fibre Solutions (NZ) Limited, and Pulse Energy Alliance LP
- Contact Energy Limited
- Nova Energy Limited and Todd Generation Taranaki Limited

Mercury NZ Limited and Genesis Energy Limited have advised they have no settlement requirements.
Meridian Energy Limited as yet has not responded.

Please provide your feedback on these responses by 18 December 2020.

Regards

Peter Wakefield
Senior Investigator

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Email: peter.wakefield@ea.govt.nz

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Peter Wakefield

From: Peter Wakefield
Sent: Friday, 18 December 2020 5:23 PM
To: 'phill@haastenergy.com'; 'Al Yates'; Luke Blincoe (luke.blincoe@electrickiwi.co.nz); Steve O'Connor; 'darren.gilchrist@ojifs.com'; 'gary.holden@pulseenergy.co.nz'; Chris Abbott; Matt Ritchie; Andrew Anderson (Andrew.Anderson@mercury.co.nz); Joycelyn Raffills; ben.winslade@vocusgroup.co.nz; Robert Allen; Sam Fleming
Subject: Settlement process now concluded for the investigations into alleged breaches of clause 13.5A by Contact Energy Limited and Meridian Energy Limited
Attachments: Copy of Haast OJI + Independent Retailers - HSTOC Settlement Requirements - Response to other submissions - 2020 12 17(1286011.1).pdf; Copy of Contact cross-submission to EA re HSOTC 18 Dec 2020(1286009.1).pdf

Dear Participants

Please find attached feed back on the settlement responses from:

- Haast Energy Trading Limited, Ecotricity Limited Partnership, Switch Utilities Limited (Vocus), Electric Kiwi Limited, Flick Energy Limited, Oji Fibre Solutions (NZ) Limited, and Pulse Energy Alliance LP
- Contact Energy Limited

Mercury NZ Limited, Genesis Energy Limited, Nova Energy Limited and Todd Generation Limited have advised they have no further comments. Meridian Energy Limited has advised it was not going to provide any feedback.

I will now conclude the settlement process for both investigations. The next steps will be for me to complete the investigations and prepare investigation reports with recommendations.

Regards

Peter Wakefield
Senior Investigator

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Fax: +64 4 460 8879
Email: peter.wakefield@ea.govt.nz

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3 March 2021

Sam Fleming
Manager Regulatory and Government Relations
Meridian Energy Limited

By Email

Dear Sam,

Investigation of alleged breach: clause 13.5A.

File ref: 1912MERI2

On 25 February 2021, Meridian Energy's Chief Executive, in response to a question at Parliament's Transport and Infrastructure Committee, advised that Meridian's traders [during the period subject to the current high standard of trading conduct investigation] had not understood and/or followed written instructions.

This information was not provided in Meridian's response to the notice of investigation or provided subsequently.

To enable me to complete my investigation report please advise

- if this information changes Meridian's position in denying that it has breached clause 13.5A of the Code
- why this information was not included in Meridian's investigation responses to date

Please also provide a copy of the instructions that were not followed and the affected trading periods.

Please provide your written response by **10 March 2021**.

If you have any questions please contact me at 04 460 8864 or peter.wakefield@ea.govt.nz.

I look forward to your response.

Yours sincerely

Peter Wakefield
Senior Investigator

Meridian Energy Limited
P O Box 10840 Wellington
New Zealand
0800 496 496
meridian.co.nz

10 March 2021

Peter Wakefield
Senior Investigator
Electricity Authority – Te Mana Hiko

By email: Peter.Wakefield@ea.govt.nz

Dear Peter

RE: Investigation of alleged breach: clause 13.5A (1912MERI2)

You refer to Meridian's annual review by the Transport and Infrastructure Select Committee and note the comments made by Meridian's Chief Executive that suggested Meridian's traders had not understood and/or followed instructions during the period subject to the current high standard of trading conduct investigation.

It was not the Chief Executive's intention to suggest that there were instructions that were disregarded in the affected trading periods or that Meridian's traders were otherwise at fault. Rather, he intended to refer to the fact that following the events of November 2019 to January 2020 Meridian identified and made improvements to some of its internal communications processes. This has since been clarified in written comments provided to the Select Committee. We do not consider these communications processes to be relevant to clause 13.5A or to the allegations made by the complainants.

This information in no way changes Meridian's position in denying the alleged breach of clause 13.5A of the Code.

Yours sincerely

Sam Fleming
Manager Regulatory and Government Relations

12 March 2021

Sam Fleming
Manager Regulatory and Government Relations
Meridian Energy Limited

By Email

Dear Sam,

Investigation of alleged breach: clause 13.5A.

File ref: 1912MERI2

Thank you for your letter of 10 March 2021 clarifying the comments made by Meridian Energy's Chief Executive, to the Transport and Infrastructure Select Committee.

While instructions during the period under investigation may not have been disregarded, there appears to be the possibility that instructions may have been misunderstood. Clause 13.5A concerns offers, so any instructions concerning offers that may have been misunderstood are covered by the investigation.

For me to assess whether any instructions that may not have been understood are relevant to the investigation please provide a copy of the instructions that were not understood and/or not carried out with the intent of the instruction along with the affected trading periods.

Please provide your written response by **19 March 2021**.

If you have any questions please contact me at 04 460 8864 or peter.wakefield@ea.govt.nz.

I look forward to your response.

Yours sincerely

Peter Wakefield
Senior Investigator

Meridian Energy Limited
P O Box 10840 Wellington
New Zealand
0800 496 496
meridian.co.nz

19 March 2021

Peter Wakefield
Senior Investigator
Electricity Authority – Te Mana Hiko

By email: Peter.Wakefield@ea.govt.nz

Dear Peter

RE: Investigation of alleged breach: clause 13.5A (1912MERI2)

Thank you for your letter of 12 March 2021.

Your letter requests that Meridian provide copies of instructions that were misunderstood and/or not carried out consistently with the intent of the instruction along with the affected trading periods. Your letter assumes that Meridian has identified particular instructions that were not followed by particular traders. This is not the case.

While Meridian has sought to understand and learn from the 2019 spill event, we have not carried out the sort of investigation which would allow conclusions to be drawn as to whether any particular trader misunderstood an instruction or did not carry out an instruction consistently with the intent of the instruction.

As a result of the review we have carried out, we are aware of a couple of specific instances where daily handover documents were not fully up to date and where emailed communications were unclear as to the priority of competing trading principles. There was a risk that these resulted in misunderstandings. The existence of such a risk was sufficient for the purposes of a forward-looking review, and we have made changes as a result.

However, for Meridian to reach the conclusion that a specific instruction was misunderstood and/or not carried out consistently with the intent of the instruction would require a different and more in depth review of: all the information available to the trader at the time (including through verbal conversations); the intention behind the particular communication; the understanding a particular trader took from the communication; and the resulting offers. As you will appreciate, out of fairness to traders, such an investigation would have been carried out quite differently from the forward-focussed review that occurred. Obviously there is also the added difficulty of reviewing the intention behind, and meaning taken from, notes and emails that are nearly 18 months old and that were communicated during an extremely busy and dynamic period.

We also reiterate our view that internal communications are immaterial to the HSOTC regime. That regime looks at *trading* conduct, ie offers in the market. Its focus has always been on pivotal suppliers and ensuring offers are not made to leverage off pivotal positions. Proper analysis under that regime can occur entirely by consideration of market behaviours. Internal communications are simply irrelevant. Putting it another way, we do not think that the HSOTC regime conceives of either Meridian or an investigator undertaking the type of review of a generator's internal communications outlined above.

If you still wish to gain an overall picture of trading instructions over this period, Meridian is willing to provide its Perform reports for the period in question. Perform reports are prepared weekly and contain information from various parts of the business to inform trading decisions. The reports also capture trading tactics for each week. These Perform reports were previously provided to Doug Watt in February 2020 as part of the UTS investigation. This offer is in the spirit of cooperation and without prejudice to Meridian's view of relevance.

Yours sincerely

Sam Fleming

Manager Regulatory and Government Relations

Appendix B Analysis

- Meridian's hydro energy offers – graphs by day showing offer tranches and average final prices

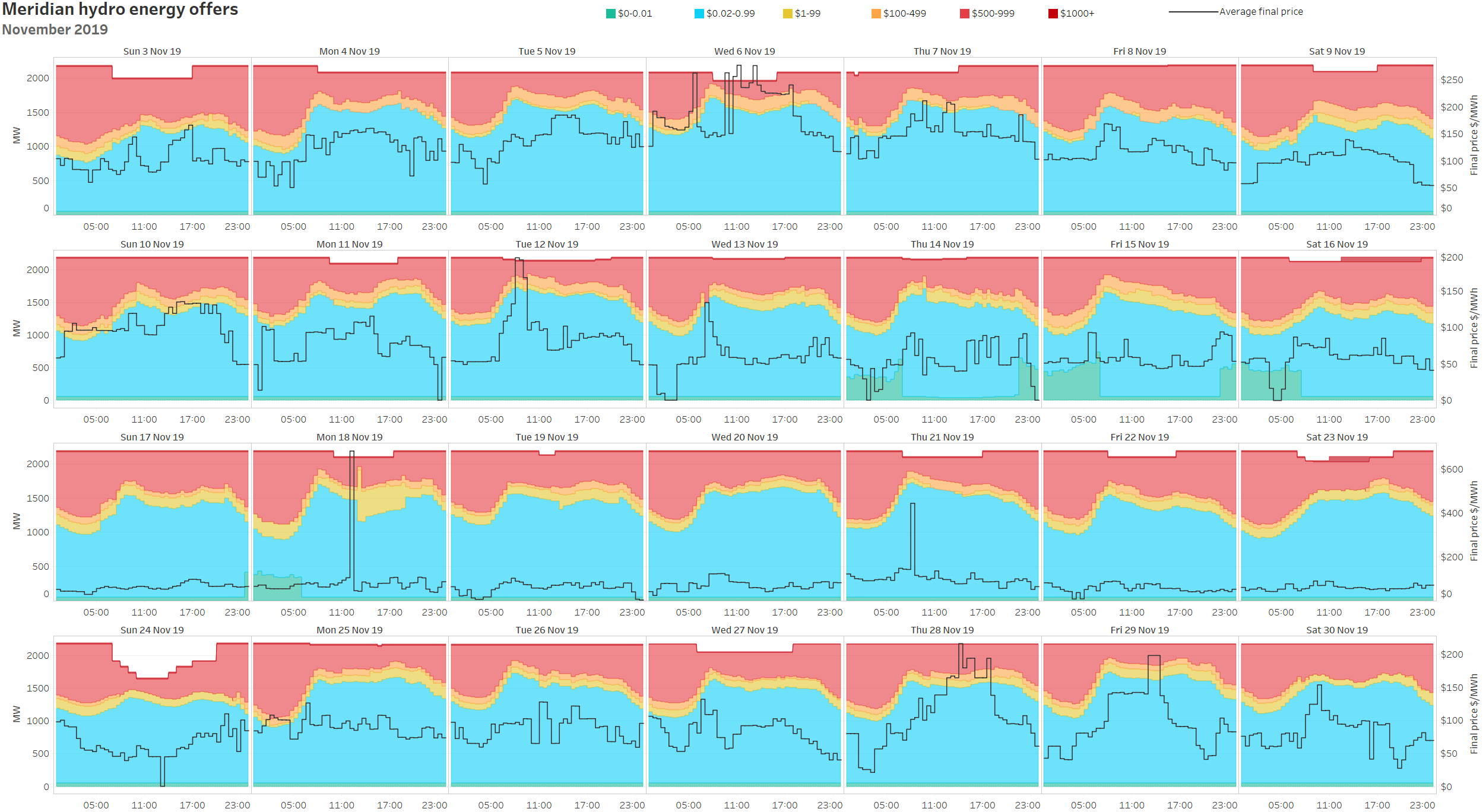
- Trading period details during periods of high prices – by generating station, total offers, dispatched generation from final pricing, final prices and details for tranches 1-5. Dispatched tranches are highlighted as well as marginal tranches that became the final price.

- Pre dispatch schedules for selected trading periods and generating stations in table and graphical form. These schedules show pre-dispatch prices and offers changes up until real time These schedules re run every two hours from 36 hours before and up until real time and every 30 minutes for eight trading periods up until real time

- Energy Offers - for selected trading periods and generation stations

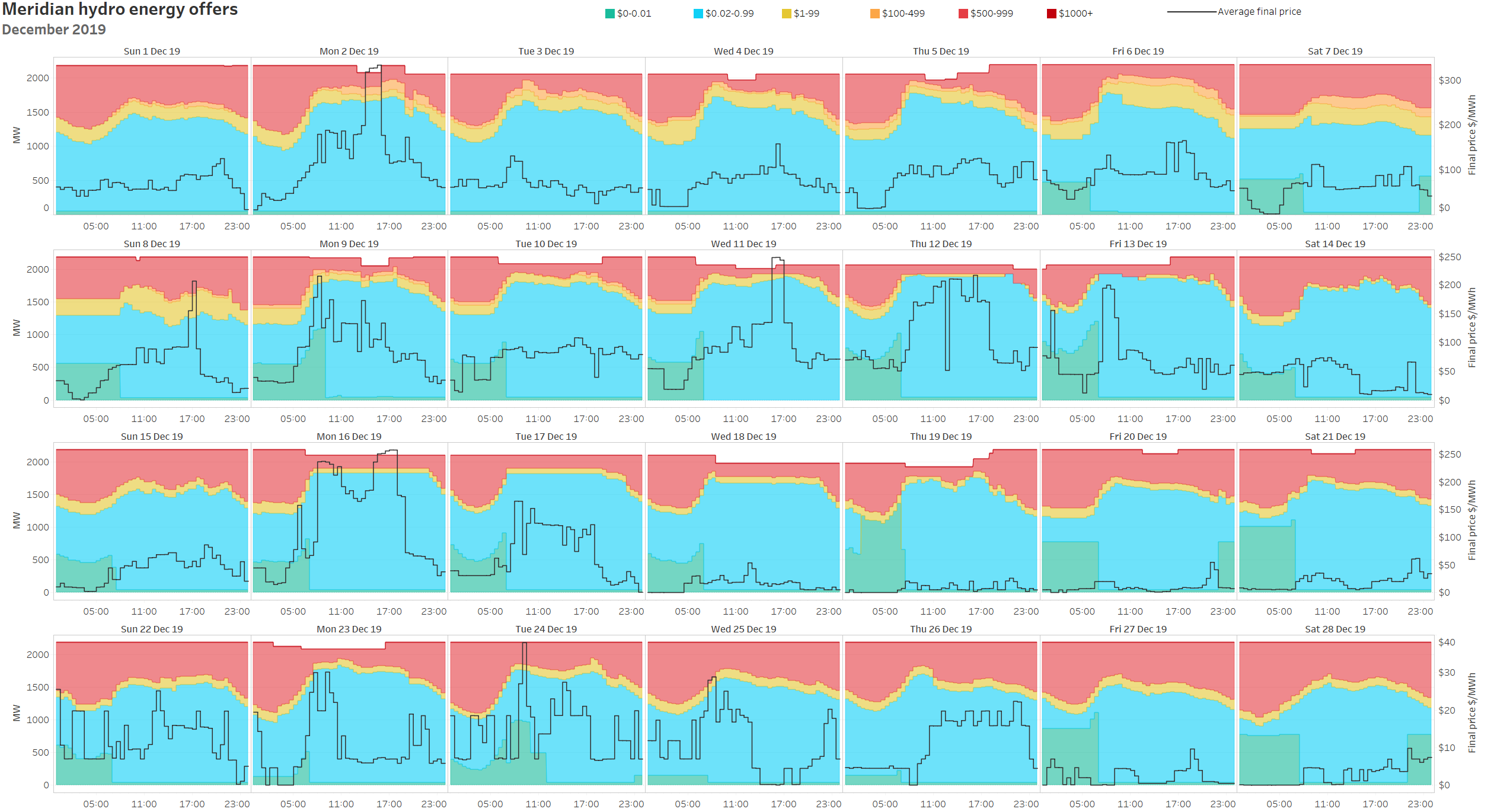
Meridian hydro energy offers

November 2019



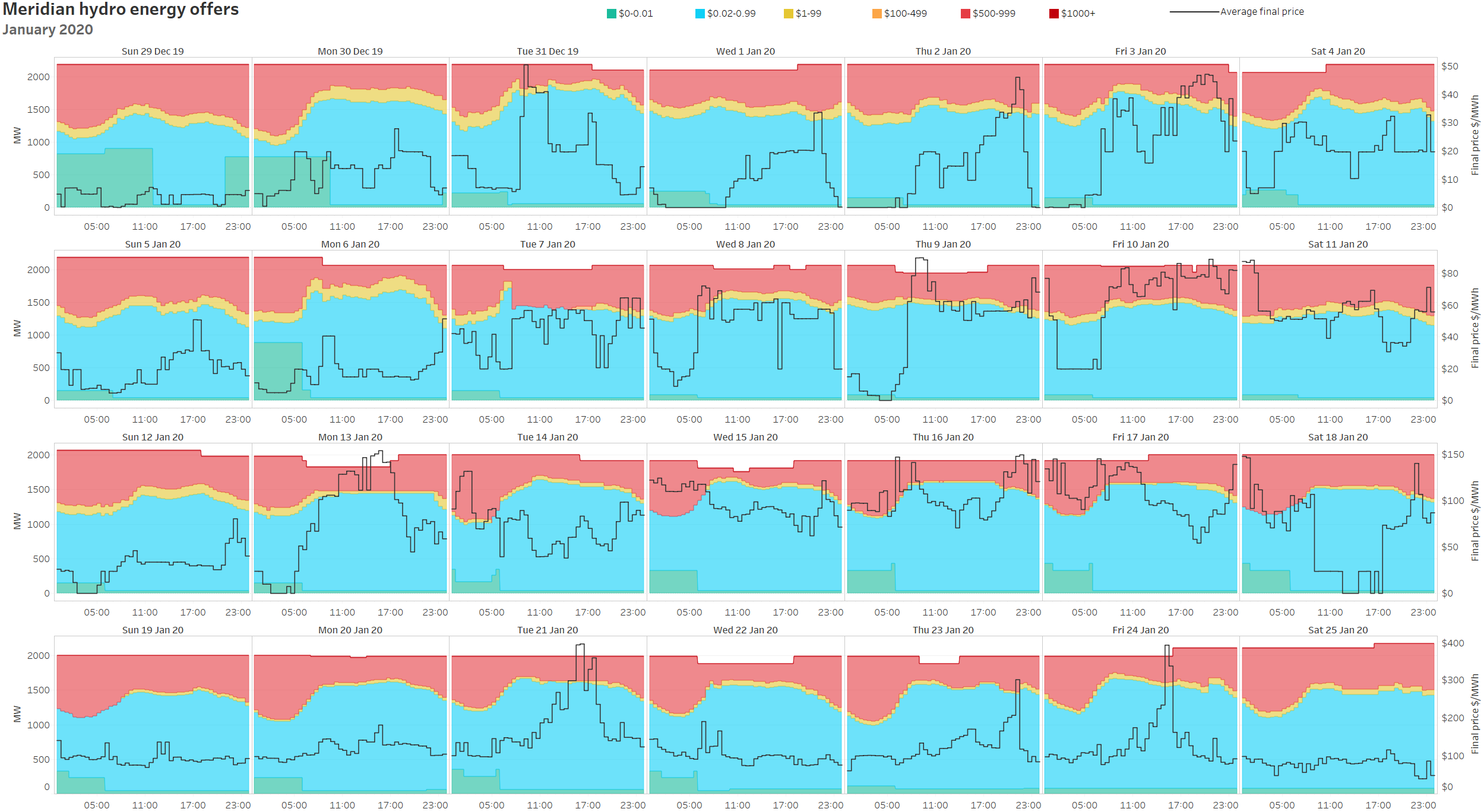
Meridian hydro energy offers

December 2019



Meridian hydro energy offers

January 2020



12-Nov-19

Tranche dispatched

Tranche dispatched - setting price

Sum of Measure Values						Tranche	Measure Names									
						Tranche 1		Tranche 2		Tranche 3		Tranche 4		Tranche 5		
Trading date	POC/Unit	Trading period	Total offers MW	SPD generati	Final price $/MWh	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW	
12/11/2019	AVI2201 AVI0	10	214	53.53	$54.49	0.03	47.982	50	5.544	97	9.24	125	9.24	900	141.994	
		11	214	67.71	$60.65	0.03	62.162	50	5.544	97	9.24	125	9.24	900	127.814	
		12	214	82.74	$54.95	0.03	77.194	50	5.544	95	9.24	125	9.24	900	112.782	
		13	214	98.85	$93.74	0.03	98.85	94	5.544	120	9.24	149	9.24	900	91.126	
		14	214	126.77	$110.83	0.03	121.23	94	5.544	118	9.24	149	9.24	900	68.746	
		15	214	148.03	$117.71	0.03	133.242	94	5.544	115	9.24	149	9.24	900	56.734	
		16	214	170.57	$134.65	0.03	146.547	65	5.544	89	9.24	129	9.24	900	43.429	
		17	214	174.27	$198.78	0.03	150.244	65	5.544	89	9.24	129	9.24	900	39.732	
		18	214	169.09	$195.79	0.03	145.069	65	5.544	89	9.24	129	9.24	900	44.907	
		19	214	162.63	$171.14	0.03	138.601	94	5.544	114	9.24	137	9.24	900	51.375	
		20	214	157.64	$98.22	0.03	157.636	114	9.24	151	3.696	187	7.392	900	36.036	
	BEN2202 BEN0	10	532	133.06	$54.76	0.03	119.282	50	13.782	97	22.971	125	22.971	900	352.994	
		11	532	168.32	$60.99	0.03	154.534	50	13.782	97	22.971	125	22.971	900	317.742	
		12	532	205.69	$55.26	0.03	191.903	50	13.782	95	22.971	125	22.971	900	280.373	
		13	532	255.2	$94.00	0.03	245.739	94	13.782	120	22.971	149	22.971	900	226.537	
		14	532	315.16	$111.11	0.03	301.375	94	13.782	118	22.971	149	22.971	900	170.901	
		15	532	367.99	$118.38	0.03	331.237	94	13.782	115	22.971	149	22.971	900	141.039	
		16	532	424.04	$135.36	0.03	364.314	65	13.782	89	22.971	129	22.971	900	107.962	
		17	532	433.23	$199.83	0.03	373.503	65	13.782	89	22.971	129	22.971	900	98.773	
		18	532	420.36	$196.82	0.03	360.639	65	13.782	89	22.971	129	22.971	900	111.637	
		19	532	404.28	$172.05	0.03	344.56	94	13.782	114	22.971	137	22.971	900	127.716	
		20	532	391.88	$98.75	0.03	391.879	114	22.971	151	9.188	187	18.377	900	89.585	
	MAN2201 MAN0	10	738	738	$49.04	0.02	738									
		11	738	738	$54.19	0.02	738									
		12	738	738	$48.74	0.02	738									
		13	738	738	$83.51	0.02	738									
		14	738	738	$98.50	0.02	738									
		15	738	738	$104.80	0.02	738									
		16	738	738	$119.88	0.02	738									
		17	738	738	$176.96	0.02	738									
		18	738	738	$174.29	0.02	738									
		19	738	738	$152.11	0.02	738									
		20	738	738	$87.32	0.02	738									
	OHA2201 OHA0	10	190	126	$54.44	0.03	126					209	51	1200	13	
		11	190	126	$60.61	0.03	126					209	51	1200	13	
		12	190	126	$54.77	0.03	126					209	51	1200	13	
		13	190	126	$93.01	0.03	126					237	51	1200	13	
		14	190	126	$109.92	0.03	126					237	51	1200	13	
		15	190	126	$117.35	0.03	126					237	51	1200	13	
		16	190	126	$134.12	0.03	126					200	51	1200	13	
		17	190	126	$198.00	0.03	126					200	51	1200	13	
		18	190	126	$195.02	0.03	126					200	51	1200	13	
		19	190	126	$170.50	0.03	126					200	51	1200	13	
		20	190	126	$97.87	0.03	56	58	30	89	40	250	51	1200	13	
	OHB2201 OHB0	10	206	51.53	$54.57	0.03	46.189	50	5.337	97	8.894	125	8.894	900	136.686	
		11	206	65.18	$60.75	0.03	59.839	50	5.337	97	8.894	125	8.894	900	123.036	
		12	206	79.65	$54.91	0.03	74.308	50	5.337	95	8.894	125	8.894	900	108.567	
		13	206	95.15	$93.23	0.03	95.154	94	5.337	120	8.894	149	8.894	900	87.721	
		14	206	122.03	$110.14	0.03	116.697	94	5.337	118	8.894	149	8.894	900	66.178	
		15	206	142.49	$117.55	0.03	128.26	94	5.337	115	8.894	149	8.894	900	54.615	
		16	206	164.2	$134.36	0.03	141.07	65	5.337	89	8.894	129	8.894	900	41.805	
		17	206	167.75	$198.36	0.03	144.626	65	5.337	89	8.894	129	8.894	900	38.249	
		18	206	162.77	$195.37	0.03	139.646	65	5.337	89	8.894	129	8.894	900	43.229	
		19	206	156.54	$170.80	0.03	133.419	94	5.337	114	8.894	137	8.894	900	49.456	
		20	206	151.74	$98.04	0.03	151.742	114	8.894	151	3.558	187	7.115	900	34.691	
	OHC2201 OHC0	10	206	51.53	$54.61	0.03	46.188	50	5.337	97	8.895	125	8.895	900	136.685	
		11	206	65.18	$60.75	0.03	59.838	50	5.337	97	8.895	125	8.895	900	123.035	
		12	206	79.65	$54.93	0.03	74.308	50	5.337	95	8.895	125	8.895	900	108.565	
		13	206	95.16	$93.32	0.03	95.155	94	5.337	120	8.895	149	8.895	900	87.718	
		14	206	122.04	$110.30	0.03	116.698	94	5.337	118	8.895	149	8.895	900	66.175	
		15	206	142.49	$117.57	0.03	128.261	94	5.337	115	8.895	149	8.895	900	54.612	
		16	206	164.2	$134.39	0.03	141.069	65	5.337	89	8.895	129	8.895	900	41.804	
		17	206	167.75	$198.40	0.03	144.627	65	5.337	89	8.895	129	8.895	900	38.246	
		18	206	162.77	$195.41	0.03	139.646	65	5.337	89	8.895	129	8.895	900	43.227	

18-Nov-19

Trading period 25 system operator managing the loss of Clyde - Twizel circuits as a single event

Tranche dispatched Tranche dispatched - setting price

Sum of Measure Values						Tranche	Measure Names									
						Tranche 1		Tranche 2		Tranche 3		Tranche 4		Tranche 5		
Trading date	POC/Unit	Trading period	Total offers MW	SPD generation MW	Final price $/MWh	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW
18/11/2019	AVI2201 AVI0	6	214	52.95	$55.79	0.01	40.015	39.86	12.936	56	9.24	73	7.392	900	144.417
		24	214	141.33	$121.15	0.03	122.314	43.82	10.009	59	6.006	72	3.003	900	72.668
		25	214	139.73	$803.17	0.03	120.713	43.82	10.009	59	6.006	72	3.003	900	74.269
		26	214	129.72	$47.61	0.03	119.712	43.82	10.009	59	6.006	72	3.003	900	75.27
	BEN2202 BEN0	6	532	151.71	$56.00	0.01	99.476	39.86	32.159	56	22.971	73	18.377	900	359.017
		24	443	292.57	$117.85	0.03	253.202	43.82	20.72	59	12.432	72	6.216	900	150.43
		25	443	289.26	$798.52	0.03	249.887	43.82	20.72	59	12.432	72	6.216	900	153.745
		26	443	268.54	$47.86	0.03	247.815	43.82	20.72	59	12.432	72	6.216	900	155.817
	MAN2201 MAN0	6	738	555	$54.08	0.02	555							980	183
		24	738	738	$40.51	0.02	738								
		25	738	503.1	$0.02	0.02	738								
		26	738	738	$42.21	0.02	738								
	OHA2201 OHA0	6	190	76	$55.90	0.01	76	94	60			975	41	1200	13
		24	190	154	$112.00	0.03	76	85	50	112	51			1200	13
		25	190	177	$789.55	0.03	76	85	50	112	51			1200	13
		26	190	76	$47.48	0.03	76	85	50	112	51			1200	13
	OHB2201 OHB0	6	206	50.97	$55.91	0.01	38.519	39.86	12.452	56	8.894	73	7.115	900	139.02
		24	206	136.05	$112.58	0.03	117.742	43.82	9.636	59	5.781	72	2.89	900	69.951
		25	206	134.51	$791.42	0.03	116.2	43.82	9.636	59	5.781	72	2.89	900	71.493
		26	206	124.87	$47.50	0.03	115.236	43.82	9.636	59	5.781	72	2.89	900	72.457
	OHC2201 OHC0	6	206	50.97	$55.90	0.01	38.519	39.86	12.453	56	8.895	73	7.116	900	139.017
		24	206	136.05	$113.45	0.03	117.742	43.82	9.635	59	5.781	72	2.891	900	69.951
		25	206	134.51	$792.35	0.03	116.2	43.82	9.635	59	5.781	72	2.891	900	71.493
		26	206	124.87	$47.51	0.03	115.237	43.82	9.635	59	5.781	72	2.891	900	72.456
	WTK0111 WTK0	6	105	55	$55.58	0.01	55			985	45			5200	5
		24	105	55	$123.54	0.01	55			985	45			5200	5
		25	105	55	$804.62	0.01	55			985	45			5200	5
		26	105	55	$47.45	0.01	55			985	45			5200	5
Grand Total						0.62	5321.529	1034.28	430	5208	473	2131	126	40980	2146.47

Predispatch offers

Tranche 1 Tranche 2 Tranche 3 Tranche 4 Tranche 5

PRS prices and offers for 18 Nov 19 11:30 (TP24)

Trading date	Trading period	Schedule	Participant	POC/unit	Colour	View
18 Nov 19	24	PRS	Meridian Energy	OHA2201 OHA0	Tranche	Table

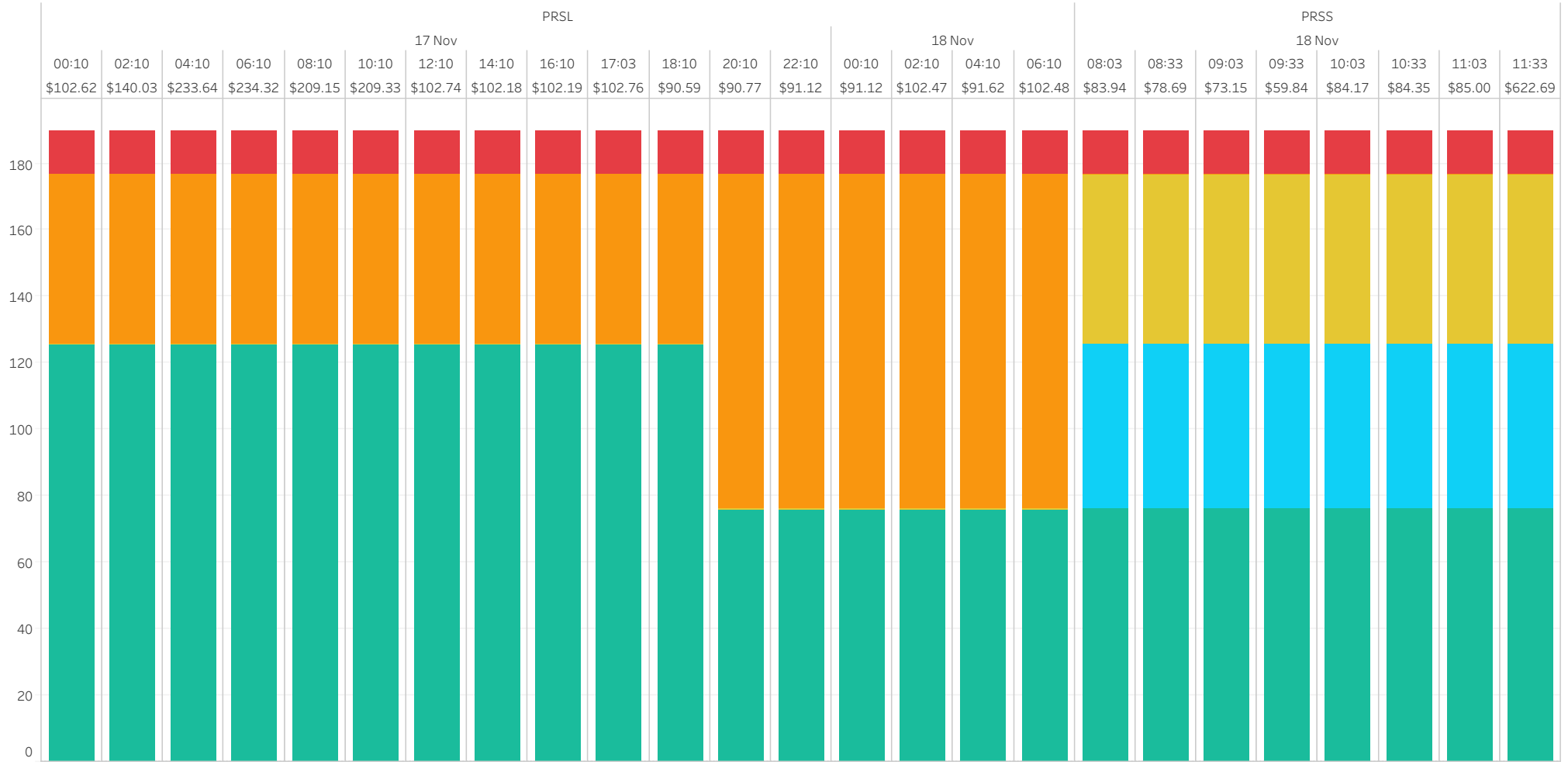
					Tranche 1		Tranche 2		Tranche 3		Tranche 4		Tranche 5	
POC/unit	Price schedule	Run time	Predispatch price $/MWh	Total offered MW	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW
OHA2201 OHA0	PRSL	17 Nov 19 00:10	$102.62	190.000	$0.03	126.000	$350.00	0.000	$450.00	0.000	$975.00	51.000	$1,200.00	13.000
		17 Nov 19 02:10	$140.03	190.000	$0.03	126.000	$350.00	0.000	$450.00	0.000	$975.00	51.000	$1,200.00	13.000
		17 Nov 19 04:10	$233.64	190.000	$0.03	126.000	$350.00	0.000	$450.00	0.000	$975.00	51.000	$1,200.00	13.000
		17 Nov 19 06:10	$234.32	190.000	$0.03	126.000	$350.00	0.000	$450.00	0.000	$975.00	51.000	$1,200.00	13.000
		17 Nov 19 08:10	$209.15	190.000	$0.03	126.000	$350.00	0.000	$450.00	0.000	$975.00	51.000	$1,200.00	13.000
		17 Nov 19 10:10	$209.33	190.000	$0.03	126.000	$350.00	0.000	$450.00	0.000	$975.00	51.000	$1,200.00	13.000
		17 Nov 19 12:10	$102.74	190.000	$0.03	126.000	$350.00	0.000	$450.00	0.000	$975.00	51.000	$1,200.00	13.000
		17 Nov 19 14:10	$102.18	190.000	$0.03	126.000	$350.00	0.000	$450.00	0.000	$975.00	51.000	$1,200.00	13.000
		17 Nov 19 16:10	$102.19	190.000	$0.03	126.000	$350.00	0.000	$450.00	0.000	$975.00	51.000	$1,200.00	13.000
		17 Nov 19 17:03	$102.76	190.000	$0.03	126.000	$350.00	0.000	$450.00	0.000	$975.00	51.000	$1,200.00	13.000
		17 Nov 19 18:10	$90.59	190.000	$0.03	126.000	$350.00	0.000	$450.00	0.000	$975.00	51.000	$1,200.00	13.000
		17 Nov 19 20:10	$90.77	190.000	$0.03	76.000	$350.00	0.000	$450.00	0.000	$975.00	101.000	$1,200.00	13.000
		17 Nov 19 22:10	$91.12	190.000	$0.03	76.000	$350.00	0.000	$450.00	0.000	$975.00	101.000	$1,200.00	13.000
		18 Nov 19 00:10	$91.12	190.000	$0.03	76.000	$350.00	0.000	$450.00	0.000	$975.00	101.000	$1,200.00	13.000
		18 Nov 19 02:10	$102.47	190.000	$0.03	76.000	$350.00	0.000	$450.00	0.000	$975.00	101.000	$1,200.00	13.000
		18 Nov 19 04:10	$91.62	190.000	$0.03	76.000	$350.00	0.000	$450.00	0.000	$975.00	101.000	$1,200.00	13.000
		18 Nov 19 06:10	$102.48	190.000	$0.03	76.000	$350.00	0.000	$450.00	0.000	$975.00	101.000	$1,200.00	13.000
	PRSS	18 Nov 19 08:03	$83.94	190.000	$0.03	76.000	$84.00	50.000	$117.00	51.000	$975.00	0.000	$1,200.00	13.000
		18 Nov 19 08:33	$78.69	190.000	$0.03	76.000	$84.00	50.000	$117.00	51.000	$975.00	0.000	$1,200.00	13.000
		18 Nov 19 09:03	$73.15	190.000	$0.03	76.000	$86.00	50.000	$112.00	51.000	$975.00	0.000	$1,200.00	13.000
		18 Nov 19 09:33	$59.84	190.000	$0.03	76.000	$86.00	50.000	$112.00	51.000	$975.00	0.000	$1,200.00	13.000
		18 Nov 19 10:03	$84.17	190.000	$0.03	76.000	$85.00	50.000	$112.00	51.000	$975.00	0.000	$1,200.00	13.000
		18 Nov 19 10:33	$84.35	190.000	$0.03	76.000	$85.00	50.000	$112.00	51.000	$975.00	0.000	$1,200.00	13.000
		18 Nov 19 11:03	$85.00	190.000	$0.03	76.000	$85.00	50.000	$112.00	51.000	$975.00	0.000	$1,200.00	13.000
		18 Nov 19 11:33	$622.69	190.000	$0.03	76.000	$85.00	50.000	$112.00	51.000	$975.00	0.000	$1,200.00	13.000

Predispatch offers

PRS prices and offers for 18 Nov 19 11:30 (TP24)

Tranche 1 Tranche 2 Tranche 3 Tranche 4 Tranche 5

Trading date	Trading period	Schedule	Participant	POC/unit	Colour	View
18 Nov 19	24	PRS	Meridian Energy	OHA2201 OHA0	Tranche	Chart



21-Nov-19

Tranche dispatched

Tranche dispatched - setting price

Sum of Measure Values							Tranche	Measure Names									
							Tranche 1		Tranche 2		Tranche 3		Tranche 4		Tranche 5	
Trading date	POC/Unit	Trading period	Total offers MW	SPD generat	Final price $/MWh	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW
21/11/2019	AVI2201 AVI0	13	214	113.27	$130.43	0.03	96.639	65	9.24	95	7.392	155	2.772	900	97.957
		14	214	138.8	$151.40	0.03	122.172	65	9.24	95	7.392	155	2.772	900	72.424
		15	214	165.03	$147.02	0.03	148.016	57	8.007	80	6.006	105	3.003	900	48.968
		16	214	182.59	$145.63	0.03	165.57	57	8.007	80	6.006	105	3.003	900	31.414
		17	214	183.77	$451.97	0.03	169.759	60	8.007	80	3.003	85	3.003	900	30.228
		18	214	178.97	$118.40	0.03	164.954	60	8.007	80	3.003	85	3.003	900	35.033
	BEN2202 BEN0	13	532	281.59	$130.79	0.03	240.243	65	22.971	95	18.377	155	6.891	900	243.518
		14	532	345.07	$151.90	0.03	303.717	65	22.971	95	18.377	155	6.891	900	180.044
		15	443	341.63	$147.77	0.03	306.408	57	16.576	80	12.432	105	6.216	900	101.368
		16	443	377.97	$146.37	0.03	342.745	57	16.576	80	12.432	105	6.216	900	65.031
		17	443	380.42	$454.26	0.03	351.416	60	16.576	80	6.216	85	6.216	900	62.576
		18	443	370.48	$119.00	0.03	341.471	60	16.576	80	6.216	85	6.216	900	72.521
	MAN2201 MAN0	13	738	738	$117.36	0.02	738								
		14	738	738	$135.97	0.02	738								
		15	738	738	$131.90	0.02	738								
		16	738	738	$130.63	0.02	738								
		17	738	738	$405.32	0.02	738								
		18	738	738	$106.18	0.02	738								
	OHA2201 OHA0	13	190	86	$129.91	0.03	86			220	40	525	51	1200	13
		14	190	86	$150.72	0.03	86			220	40	525	51	1200	13
		15	190	177	$146.38	0.03	81	113	30	130	30	145	36	1200	13
		16	190	169.65	$145.00	0.03	81	113	30	130	30	145	36	1200	13
		17	190	147.04	$450.00	0.03	76	105	40	140	30	450	31	1200	13
		18	190	116	$117.89	0.03	76	105	40	140	30	450	31	1200	13
	OHB2201 OHB0	13	206	109.04	$129.99	0.03	93.026	65	8.894	95	7.115	155	2.669	900	94.296
		14	206	133.61	$150.77	0.03	117.605	65	8.894	95	7.115	155	2.669	900	69.717
		15	206	158.86	$146.65	0.03	142.483	57	7.709	80	5.781	105	2.89	900	47.137
		16	206	175.76	$145.26	0.03	159.381	57	7.709	80	5.781	105	2.89	900	30.239
		17	206	176.9	$450.82	0.03	163.412	60	7.709	80	2.89	85	2.89	900	29.099
		18	206	172.28	$118.10	0.03	158.787	60	7.709	80	2.89	85	2.89	900	33.724
	OHC2201 OHC0	13	206	109.04	$129.94	0.03	93.026	65	8.895	95	7.116	155	2.668	900	94.295
		14	206	133.62	$150.80	0.03	117.605	65	8.895	95	7.116	155	2.668	900	69.716
		15	206	158.86	$146.69	0.03	142.483	57	7.708	80	5.781	105	2.891	900	47.137
		16	206	175.76	$145.30	0.03	159.38	57	7.708	80	5.781	105	2.891	900	30.24
		17	206	176.9	$450.94	0.03	163.413	60	7.708	80	2.891	85	2.891	900	29.097
		18	206	172.28	$118.13	0.03	158.788	60	7.708	80	2.891	85	2.891	900	33.722
	WTK0111 WTK0	13	105	55	$130.02	0.01	55			985	45			5200	5
		14	105	55	$150.86	0.01	55			985	45			5200	5
		15	105	55	$146.69	0.01	55			985	45			5200	5
		16	105	55	$145.31	0.01	55			985	45			5200	5
		17	105	55	$450.95	0.01	55			985	45			5200	5
		18	105	55	$118.14	0.01	55			985	45			5200	5
Grand Total						1.08	9666.499	1892	400	8930	640	5000	326	60000	1757.5

Offers

Meridian Energy offers for Injection on 21 Nov 2019 TP17 at OHA2201 OHA0

Product	Submission date	Submission time	Island	POC/Unit	Submission order	Band	Megawatt	Price (dollars per megawatt hour)	Maximum ramp up megawatt per hour	Maximum ramp down megawatt per hour	Partially loaded spinning reserve pe..	Maximum output megawatt	Forecast of generation potential megawatt
Injection	15 Nov 2019	12:01:05 AM	South Island	OHA2201 OHA0	1	Tranche 1	126	$0.03	9,999	9,999		190	
						Tranche 2	0	$350.00	9,999	9,999		190	
						Tranche 3	0	$450.00	9,999	9,999		190	
						Tranche 4	51	$975.00	9,999	9,999		190	
						Tranche 5	13	$1,200.00	9,999	9,999		190	
	20 Nov 2019	9:58:19 PM	South Island	OHA2201 OHA0	2	Tranche 1	81	$0.03	9,999	9,999		190	
						Tranche 2	30	$112.00	9,999	9,999		190	
						Tranche 3	15	$180.00	9,999	9,999		190	
						Tranche 4	51	$270.00	9,999	9,999		190	
	21 Nov 2019	5:59:14 AM	South Island	OHA2201 OHA0	3	Tranche 2	30	$113.00	9,999	9,999		190	
						Tranche 3	30	$130.00	9,999	9,999		190	
						Tranche 4	36	$145.00	9,999	9,999		190	
		6:55:39 AM	South Island	OHA2201 OHA0	3	Tranche 1	76	$0.03	9,999	9,999		190	
					4	Tranche 2	40	$105.00	9,999	9,999		190	
						Tranche 3	30	$140.00	9,999	9,999		190	
						Tranche 4	31	$450.00	9,999	9,999		190	

Trading date
21 Nov 2019

Trading period
17

Island
All

Participant
Meridian Energy

POC/Unit
OHA2201 OHA0

Is latest
All

Product
Injection

Predispatch offers

Tranche 1 Tranche 2 Tranche 3 Tranche 4 Tranche 5

PRS prices and offers for 21 Nov 19 07:30 (TP16)

Trading date	Trading period	Schedule	Participant	POC/unit	Colour	View
21 Nov 19	16	PRS	Meridian Energy	OHA2201 OHA0	Tranche	Table

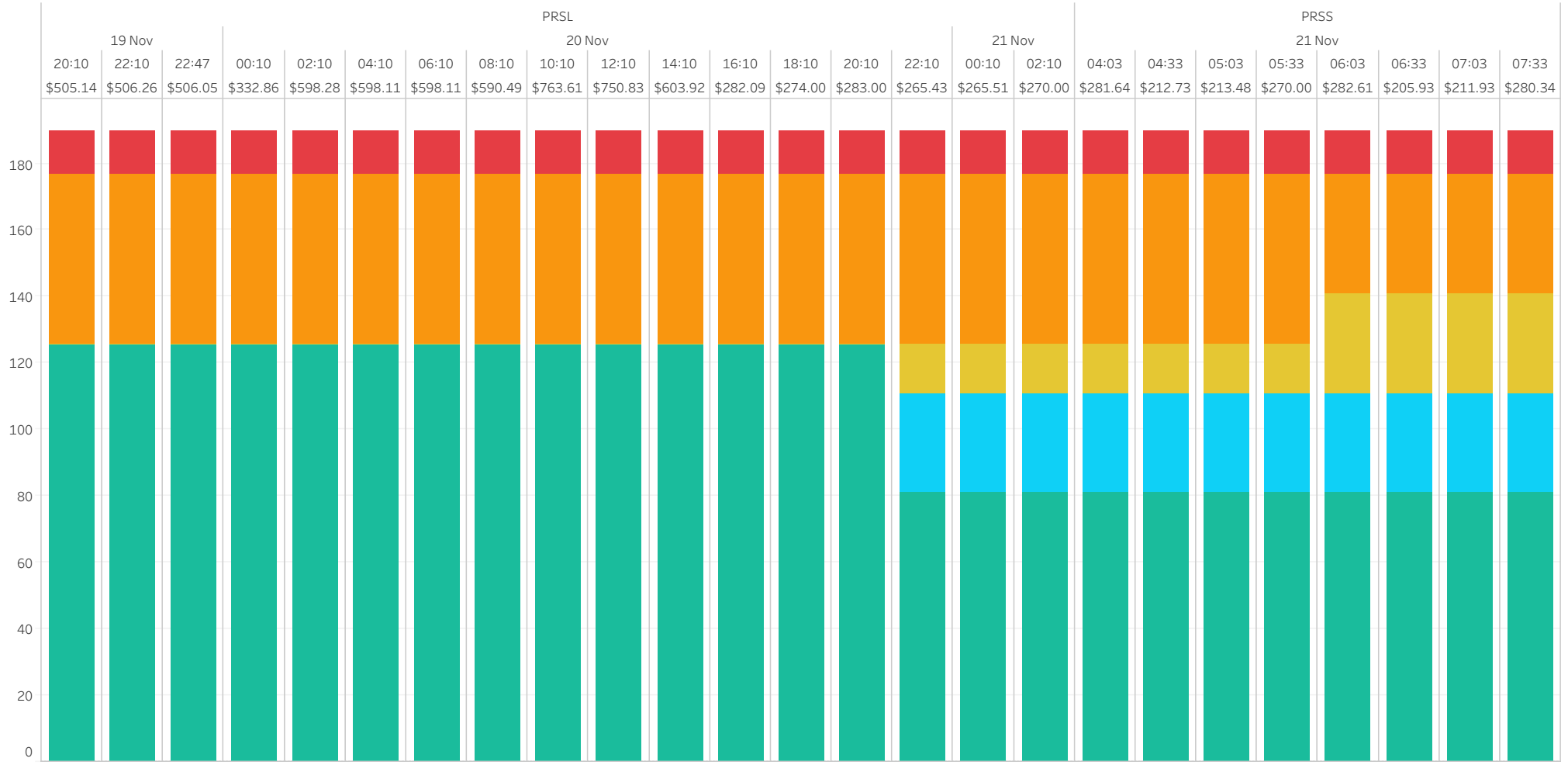
					Tranche 1		Tranche 2		Tranche 3		Tranche 4		Tranche 5	
POC/unit	Price schedule	Run time	Predispatch price $/MWh	Total offered MW	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW
OHA2201 OHA0	PRSL	19 Nov 19 20:10	$505.14	190.000	$0.03	126.000	$350.00	0.000	$450.00	0.000	$975.00	51.000	$1,200.00	13.000
		19 Nov 19 22:10	$506.26	190.000	$0.03	126.000	$350.00	0.000	$450.00	0.000	$975.00	51.000	$1,200.00	13.000
		19 Nov 19 22:47	$506.05	190.000	$0.03	126.000	$350.00	0.000	$450.00	0.000	$975.00	51.000	$1,200.00	13.000
		20 Nov 19 00:10	$332.86	190.000	$0.03	126.000	$350.00	0.000	$450.00	0.000	$975.00	51.000	$1,200.00	13.000
		20 Nov 19 02:10	$598.28	190.000	$0.03	126.000	$350.00	0.000	$450.00	0.000	$975.00	51.000	$1,200.00	13.000
		20 Nov 19 04:10	$598.11	190.000	$0.03	126.000	$350.00	0.000	$450.00	0.000	$975.00	51.000	$1,200.00	13.000
		20 Nov 19 06:10	$598.11	190.000	$0.03	126.000	$350.00	0.000	$450.00	0.000	$975.00	51.000	$1,200.00	13.000
		20 Nov 19 08:10	$590.49	190.000	$0.03	126.000	$350.00	0.000	$450.00	0.000	$975.00	51.000	$1,200.00	13.000
		20 Nov 19 10:10	$763.61	190.000	$0.03	126.000	$350.00	0.000	$450.00	0.000	$975.00	51.000	$1,200.00	13.000
		20 Nov 19 12:10	$750.83	190.000	$0.03	126.000	$350.00	0.000	$450.00	0.000	$975.00	51.000	$1,200.00	13.000
		20 Nov 19 14:10	$603.92	190.000	$0.03	126.000	$350.00	0.000	$450.00	0.000	$975.00	51.000	$1,200.00	13.000
		20 Nov 19 16:10	$282.09	190.000	$0.03	126.000	$350.00	0.000	$450.00	0.000	$975.00	51.000	$1,200.00	13.000
		20 Nov 19 18:10	$274.00	190.000	$0.03	126.000	$350.00	0.000	$450.00	0.000	$975.00	51.000	$1,200.00	13.000
		20 Nov 19 20:10	$283.00	190.000	$0.03	126.000	$350.00	0.000	$450.00	0.000	$975.00	51.000	$1,200.00	13.000
		20 Nov 19 22:10	$265.43	190.000	$0.03	81.000	$112.00	30.000	$180.00	15.000	$270.00	51.000	$1,200.00	13.000
		21 Nov 19 00:10	$265.51	190.000	$0.03	81.000	$112.00	30.000	$180.00	15.000	$270.00	51.000	$1,200.00	13.000
		21 Nov 19 02:10	$270.00	190.000	$0.03	81.000	$112.00	30.000	$180.00	15.000	$270.00	51.000	$1,200.00	13.000
	PRSS	21 Nov 19 04:03	$281.64	190.000	$0.03	81.000	$112.00	30.000	$180.00	15.000	$270.00	51.000	$1,200.00	13.000
		21 Nov 19 04:33	$212.73	190.000	$0.03	81.000	$112.00	30.000	$180.00	15.000	$270.00	51.000	$1,200.00	13.000
		21 Nov 19 05:03	$213.48	190.000	$0.03	81.000	$112.00	30.000	$180.00	15.000	$270.00	51.000	$1,200.00	13.000
		21 Nov 19 05:33	$270.00	190.000	$0.03	81.000	$112.00	30.000	$180.00	15.000	$270.00	51.000	$1,200.00	13.000
		21 Nov 19 06:03	$282.61	190.000	$0.03	81.000	$113.00	30.000	$130.00	30.000	$145.00	36.000	$1,200.00	13.000
		21 Nov 19 06:33	$205.93	190.000	$0.03	81.000	$113.00	30.000	$130.00	30.000	$145.00	36.000	$1,200.00	13.000
		21 Nov 19 07:03	$211.93	190.000	$0.03	81.000	$113.00	30.000	$130.00	30.000	$145.00	36.000	$1,200.00	13.000
		21 Nov 19 07:33	$280.34	190.000	$0.03	81.000	$113.00	30.000	$130.00	30.000	$145.00	36.000	$1,200.00	13.000

Predispatch offers

PRS prices and offers for 21 Nov 19 07:30 (TP16)

Tranche 1 Tranche 2 Tranche 3 Tranche 4 Tranche 5

Trading date	Trading period	Schedule	Participant	POC/unit	Colour	View
21 Nov 19	16	PRS	Meridian Energy	OHA2201 OHA0	Tranche	Chart



Predispatch offers

Tranche 1 Tranche 2 Tranche 3 Tranche 4 Tranche 5

PRS prices and offers for 21 Nov 19 08:00 (TP17)

Trading date	Trading period	Schedule	Participant	POC/unit	Colour	View
21 Nov 19	17	PRS	Meridian Energy	OHA2201 OHA0	Tranche	Table

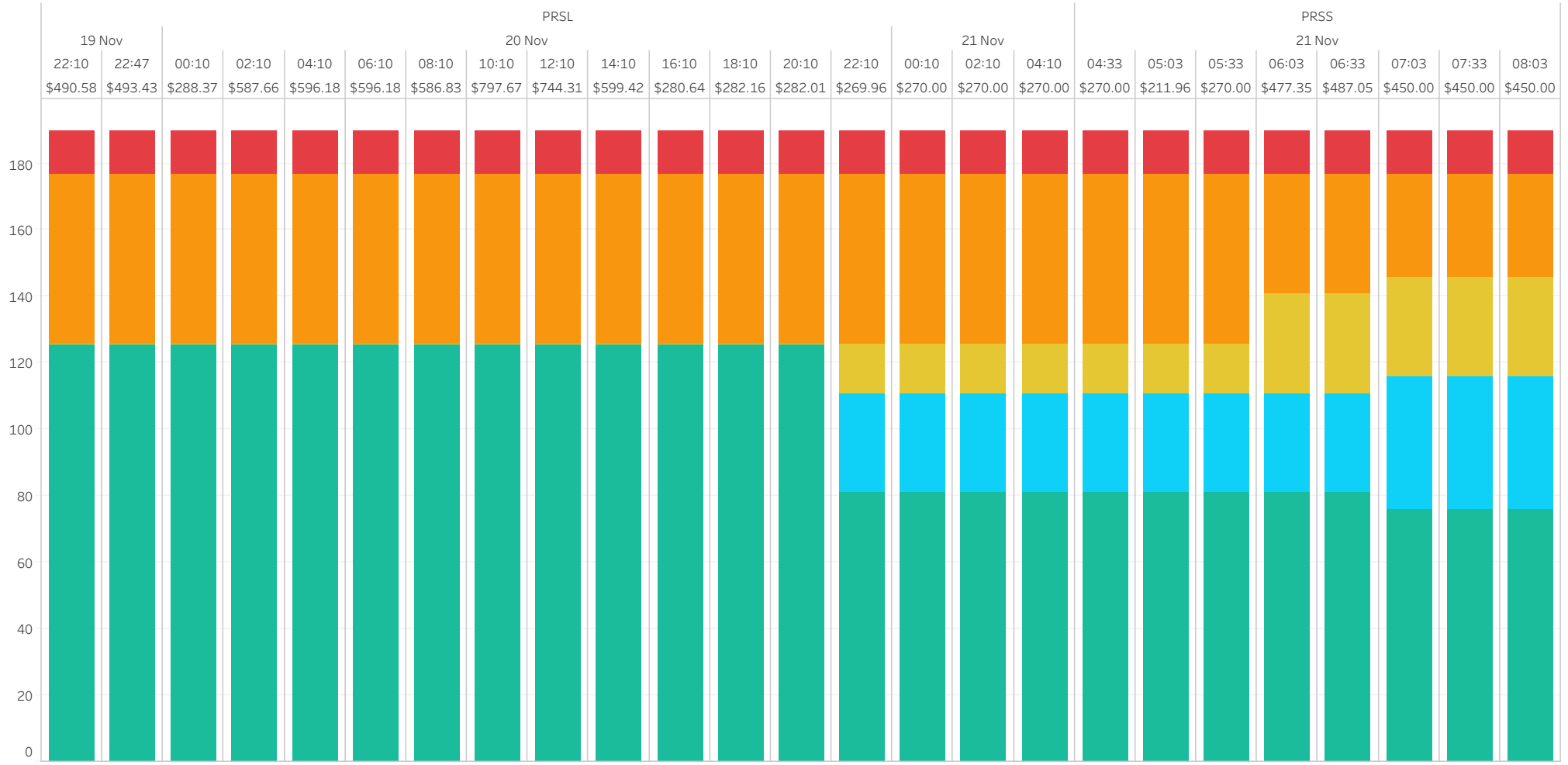
					Tranche 1		Tranche 2		Tranche 3		Tranche 4		Tranche 5	
POC/unit	Price schedule	Run time	Predispatch price $/MWh	Total offered MW	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW
OHA2201 OHA0	PRSL	19 Nov 19 22:10	$490.58	190.000	$0.03	126.000	$350.00	0.000	$450.00	0.000	$975.00	51.000	$1,200.00	13.000
		19 Nov 19 22:47	$493.43	190.000	$0.03	126.000	$350.00	0.000	$450.00	0.000	$975.00	51.000	$1,200.00	13.000
		20 Nov 19 00:10	$288.37	190.000	$0.03	126.000	$350.00	0.000	$450.00	0.000	$975.00	51.000	$1,200.00	13.000
		20 Nov 19 02:10	$587.66	190.000	$0.03	126.000	$350.00	0.000	$450.00	0.000	$975.00	51.000	$1,200.00	13.000
		20 Nov 19 04:10	$596.18	190.000	$0.03	126.000	$350.00	0.000	$450.00	0.000	$975.00	51.000	$1,200.00	13.000
		20 Nov 19 06:10	$596.18	190.000	$0.03	126.000	$350.00	0.000	$450.00	0.000	$975.00	51.000	$1,200.00	13.000
		20 Nov 19 08:10	$586.83	190.000	$0.03	126.000	$350.00	0.000	$450.00	0.000	$975.00	51.000	$1,200.00	13.000
		20 Nov 19 10:10	$797.67	190.000	$0.03	126.000	$350.00	0.000	$450.00	0.000	$975.00	51.000	$1,200.00	13.000
		20 Nov 19 12:10	$744.31	190.000	$0.03	126.000	$350.00	0.000	$450.00	0.000	$975.00	51.000	$1,200.00	13.000
		20 Nov 19 14:10	$599.42	190.000	$0.03	126.000	$350.00	0.000	$450.00	0.000	$975.00	51.000	$1,200.00	13.000
		20 Nov 19 16:10	$280.64	190.000	$0.03	126.000	$350.00	0.000	$450.00	0.000	$975.00	51.000	$1,200.00	13.000
		20 Nov 19 18:10	$282.16	190.000	$0.03	126.000	$350.00	0.000	$450.00	0.000	$975.00	51.000	$1,200.00	13.000
		20 Nov 19 20:10	$282.01	190.000	$0.03	126.000	$350.00	0.000	$450.00	0.000	$975.00	51.000	$1,200.00	13.000
		20 Nov 19 22:10	$269.96	190.000	$0.03	81.000	$112.00	30.000	$180.00	15.000	$270.00	51.000	$1,200.00	13.000
		21 Nov 19 00:10	$270.00	190.000	$0.03	81.000	$112.00	30.000	$180.00	15.000	$270.00	51.000	$1,200.00	13.000
		21 Nov 19 02:10	$270.00	190.000	$0.03	81.000	$112.00	30.000	$180.00	15.000	$270.00	51.000	$1,200.00	13.000
		21 Nov 19 04:10	$270.00	190.000	$0.03	81.000	$112.00	30.000	$180.00	15.000	$270.00	51.000	$1,200.00	13.000
	PRSS	21 Nov 19 04:33	$270.00	190.000	$0.03	81.000	$112.00	30.000	$180.00	15.000	$270.00	51.000	$1,200.00	13.000
		21 Nov 19 05:03	$211.96	190.000	$0.03	81.000	$112.00	30.000	$180.00	15.000	$270.00	51.000	$1,200.00	13.000
		21 Nov 19 05:33	$270.00	190.000	$0.03	81.000	$112.00	30.000	$180.00	15.000	$270.00	51.000	$1,200.00	13.000
		21 Nov 19 06:03	$477.35	190.000	$0.03	81.000	$113.00	30.000	$130.00	30.000	$145.00	36.000	$1,200.00	13.000
		21 Nov 19 06:33	$487.05	190.000	$0.03	81.000	$113.00	30.000	$130.00	30.000	$145.00	36.000	$1,200.00	13.000
		21 Nov 19 07:03	$450.00	190.000	$0.03	76.000	$105.00	40.000	$140.00	30.000	$450.00	31.000	$1,200.00	13.000
		21 Nov 19 07:33	$450.00	190.000	$0.03	76.000	$105.00	40.000	$140.00	30.000	$450.00	31.000	$1,200.00	13.000
		21 Nov 19 08:03	$450.00	190.000	$0.03	76.000	$105.00	40.000	$140.00	30.000	$450.00	31.000	$1,200.00	13.000

Predispatch offers

PRS prices and offers for 21 Nov 19 08:00 (TP17)

Tranche 1 Tranche 2 Tranche 3 Tranche 4 Tranche 5

Trading date	Trading period	Schedule	Participant	POC/unit	Colour	View
21 Nov 19	17	PRS	Meridian Energy	OHA2201 OHA0	Tranche	Chart



28-Nov-19

Tranche dispatched

Tranche dispatched - setting price

Sum of Measure Values						Tranche	Measure Names									
						Tranche 1		Tranche 2		Tranche 3		Tranche 4		Tranche 5	
Trading date	POC/Unit	Trading period	Total offers MW	SPD generati	Final price $/MWh	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW
28/11/2019	AVI2201 AVI0	13	214	100.62	$82.40	0.03	74.392	57.6	15.735	68	10.49	83	10.49	900	102.893
		16	214	185.68	$87.99	0.03	164.696	54.6	10.49	65.7	10.49	90	10.49	900	17.834
		17	214	200.1	$103.17	0.03	168.63	54.6	10.49	65.7	10.49	90	10.49	900	13.9
		18	214	193.81	$106.00	0.03	162.336	54.6	10.49	65.7	10.49	90	10.49	900	20.194
		19	214	184.89	$135.54	0.03	153.419	54.6	10.49	65.7	10.49	90	10.49	900	29.111
		20	214	176.24	$101.73	0.03	146.076	56	13.113	62	9.179	85	7.868	900	37.764
		21	214	171.78	$123.69	0.03	141.618	56	13.113	62	9.179	85	7.868	900	42.222
		22	214	182.79	$113.41	0.03	153.944	62	13.113	85	7.868	96	7.868	900	31.207
		23	214	179.65	$140.61	0.03	150.797	62	13.113	85	7.868	96	7.868	900	34.354
		24	214	177.02	$140.61	0.03	148.174	62	13.113	85	7.868	96	7.868	900	36.977
		25	214	174.93	$140.61	0.03	146.076	62	13.113	85	7.868	96	7.868	900	39.075
		26	214	173.61	$166.58	0.03	144.765	62	13.113	85	7.868	96	7.868	900	40.386
		27	214	172.3	$169.34	0.03	143.453	62	13.113	85	7.868	96	7.868	900	41.698
		28	214	170.73	$166.58	0.03	141.88	62	13.113	85	7.868	96	7.868	900	43.271
		29	214	168.89	$219.00	0.03	140.044	62	13.113	85	7.868	96	7.868	900	45.107
		30	214	170.47	$181.77	0.03	141.618	62	13.113	85	7.868	96	7.868	900	43.533
		31	214	172.83	$196.50	0.03	143.978	62	13.113	96	7.868	109	7.868	900	41.173
		32	214	158.4	$196.52	0.03	129.554	62	13.113	96	7.868	109	7.868	900	55.597
		33	214	162.86	$166.58	0.03	134.012	62	13.113	96	7.868	109	7.868	900	51.139
		34	214	166.27	$166.58	0.03	137.422	62	13.113	96	7.868	109	7.868	900	47.729
		35	214	167.32	$166.58	0.03	138.471	62	13.113	96	7.868	109	7.868	900	46.68
		36	214	168.11	$196.51	0.03	139.257	62	13.113	96	7.868	109	7.868	900	45.894
		37	214	166.01	$139.74	0.03	137.159	62	13.113	96	7.868	109	7.868	900	47.992
		38	214	174.92	$109.21	0.03	138.208	62	15.735	96	10.49	109	10.49	900	39.077
		39	214	156.04	$105.35	0.03	129.816	62	15.735	96	10.49	109	10.49	900	47.469
		40	214	151.58	$102.42	0.03	125.358	62	15.735	96	10.49	109	10.49	900	51.927
	BEN2202 BEN0	13	532	265	$82.43	0.03	265	250	50					975	217
		16	532	265	$88.23	0.03	265	150	50					975	217
		17	532	265	$103.46	0.03	265	150	50					975	217
		18	532	265	$106.29	0.03	265	150	50					975	217
		19	532	265	$135.91	0.03	265	150	50					975	217
		20	532	288.9	$102.00	0.03	265	102	25	124	30			975	212
		21	532	294.55	$124.00	0.03	265	102	25	124	30			975	212
		22	532	290	$113.72	0.03	265	104	25	141	30	167	40	975	172
		23	532	293.72	$141.00	0.03	265	104	25	141	30	167	40	975	172
		24	532	317.61	$141.00	0.03	265	104	25	141	30	167	40	975	172
		25	532	317.85	$141.00	0.03	265	104	25	141	30	167	40	975	172
		26	532	337.44	$167.00	0.03	265	104	25	141	30	167	40	975	172
		27	532	360	$169.76	0.03	265	104	25	141	30	167	40	975	172
		28	532	340.27	$167.00	0.03	265	104	25	141	30	167	40	975	172
		29	532	360	$219.56	0.03	265	104	25	141	30	167	40	975	172
		30	532	360	$182.23	0.03	265	104	25	141	30	167	40	975	172
		31	532	351.35	$197.00	0.03	265	141	25	167	30	197	40	975	172
		32	532	409.1	$197.00	0.03	354	141	25	167	30	197	40	975	83
		33	532	399.11	$167.00	0.03	354	141	25	167	30	197	40	975	83
		34	532	392.44	$167.00	0.03	354	141	25	167	30	197	40	975	83
		35	532	403.32	$167.00	0.03	354	141	25	167	30	197	40	975	83

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Tranche dispatched | Tranche dispatched - setting price

Sum of Measure Values						Tranche	Measure Names									
						Tranche 1		Tranche 2		Tranche 3		Tranche 4		Tranche 5	
Trading date	POC/Unit	Trading period	Total offers MW	SPD generati	Final price $/MWh	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW
	BEN2202 BEN0	36	532	432.71	$197.00	0.03	354	141	25	167	30	197	40	975	83
		37	532	354	$140.09	0.03	354	141	25	167	30	197	40	975	83
		38	532	354	$109.49	0.03	354	141	25	167	30	197	40	975	83
		39	532	354	$105.61	0.03	354	141	25	167	30	197	40	975	83
		40	532	354	$102.66	0.03	354	141	25	167	30	197	40	975	83
	MAN2201 MAN0	13	738	650	$76.75	0.02	650							980	88
		16	738	650	$81.51	0.02	650							980	88
		17	738	650	$95.58	0.02	650							980	88
		18	738	650	$98.19	0.02	650							980	88
		19	738	650	$125.57	0.02	650							980	88
		20	738	650	$94.30	0.02	650							980	88
		21	738	650	$114.82	0.02	650							980	88
		22	738	650	$105.01	0.02	650							980	88
		23	738	650	$130.20	0.02	650							980	88
		24	738	650	$130.20	0.02	650							980	88
		25	738	650	$130.20	0.02	650							980	88
		26	738	650	$154.53	0.02	650							980	88
		27	738	650	$157.08	0.02	650							980	88
		28	738	650	$154.52	0.02	650							980	88
		29	738	650	$203.30	0.02	650							980	88
		30	738	650	$168.74	0.02	650							980	88
		31	738	650	$182.50	0.02	650							980	88
		32	738	650	$182.66	0.02	650							980	88
		33	738	650	$154.71	0.02	650							980	88
		34	738	650	$154.71	0.02	650							980	88
		35	738	650	$154.70	0.02	650							980	88
		36	738	650	$182.50	0.02	650							980	88
		37	738	650	$129.75	0.02	650							980	88
		38	738	650	$101.39	0.02	650							980	88
		39	738	665	$97.31	0.02	665							980	73
		40	738	675	$93.87	0.02	675							980	63
	OHA2201 OHA0	13	190	89.34	$82.24	0.03	66.05	57.6	13.971	68	9.314	83	9.314	900	91.351
		16	190	164.85	$87.43	0.03	146.226	54.6	9.314	65.7	9.314	90	9.314	900	15.832
		17	190	177.66	$102.52	0.03	149.718	54.6	9.314	65.7	9.314	90	9.314	900	12.34
		18	190	172.07	$105.32	0.03	144.13	54.6	9.314	65.7	9.314	90	9.314	900	17.928
		19	190	164.16	$134.69	0.03	136.213	54.6	9.314	65.7	9.314	90	9.314	900	25.845
		20	190	156.47	$101.24	0.03	129.694	56	11.641	62	8.149	85	6.984	900	33.532
		21	190	152.51	$123.32	0.03	125.734	56	11.641	62	8.149	85	6.984	900	37.492
		22	190	162.29	$112.69	0.03	136.678	62	11.641	85	6.984	96	6.984	900	27.713
		23	190	159.49	$139.73	0.03	133.885	62	11.641	85	6.984	96	6.984	900	30.506
		24	190	157.17	$139.73	0.03	131.556	62	11.641	85	6.984	96	6.984	900	32.835
		25	190	155.3	$139.73	0.03	129.694	62	11.641	85	6.984	96	6.984	900	34.697
		26	190	154.14	$166.09	0.03	128.529	62	11.641	85	6.984	96	6.984	900	35.862
		27	190	152.97	$168.83	0.03	127.365	62	11.641	85	6.984	96	6.984	900	37.026
		28	190	151.58	$166.08	0.03	125.968	62	11.641	85	6.984	96	6.984	900	38.423
		29	190	149.95	$218.36	0.03	124.338	62	11.641	85	6.984	96	6.984	900	40.053
		30	190	151.34	$181.24	0.03	125.734	62	11.641	85	6.984	96	6.984	900	38.657

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Tranche dispatched

Tranche dispatched - setting price

Sum of Measure Values						Tranche	Measure Names									
						Tranche 1		Tranche 2		Tranche 3		Tranche 4		Tranche 5		
Trading date	POC/Unit	Trading period	Total offers MW	SPD generati	Final price $/MWh	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW	
	OHA2201 OHA0	31	190	153.44	$195.93	0.03	127.83	62	11.641	96	6.984	109	6.984	900	36.561	
		32	190	140.63	$196.16	0.03	115.024	62	11.641	96	6.984	109	6.984	900	49.367	
		33	190	144.59	$166.09	0.03	118.984	62	11.641	96	6.984	109	6.984	900	45.407	
		34	190	147.62	$166.09	0.03	122.01	62	11.641	96	6.984	109	6.984	900	42.381	
		35	190	148.55	$166.08	0.03	122.941	62	11.641	96	6.984	109	6.984	900	41.45	
		36	190	149.25	$195.92	0.03	123.641	62	11.641	96	6.984	109	6.984	900	40.75	
		37	190	147.39	$139.32	0.03	121.777	62	11.641	96	6.984	109	6.984	900	42.614	
		38	190	145.99	$108.88	0.03	122.708	62	13.971	96	9.314	109	9.314	900	34.693	
		39	190	138.54	$105.03	0.03	115.258	62	13.971	96	9.314	109	9.314	900	42.143	
		40	190	134.58	$102.08	0.03	111.298	62	13.971	96	9.314	109	9.314	900	46.103	
	OHB2201 OHB0	13	206	96.86	$82.26	0.03	71.611	57.6	15.147	68	10.098	83	10.098	900	99.046	
		16	206	178.74	$87.59	0.03	158.539	54.6	10.098	65.7	10.098	90	10.098	900	17.167	
		17	206	192.62	$102.70	0.03	162.326	54.6	10.098	65.7	10.098	90	10.098	900	13.38	
		18	206	186.56	$105.51	0.03	156.267	54.6	10.098	65.7	10.098	90	10.098	900	19.439	
		19	206	177.98	$134.93	0.03	147.684	54.6	10.098	65.7	10.098	90	10.098	900	28.022	
		20	206	169.65	$101.44	0.03	140.615	56	12.623	62	8.836	85	7.574	900	36.352	
		21	206	165.36	$123.56	0.03	136.324	56	12.623	62	8.836	85	7.574	900	40.643	
		22	206	175.96	$112.90	0.03	148.189	62	12.623	85	7.574	96	7.574	900	30.04	
		23	206	172.93	$139.98	0.03	145.159	62	12.623	85	7.574	96	7.574	900	33.07	
		24	206	170.41	$139.98	0.03	142.635	62	12.623	85	7.574	96	7.574	900	35.594	
		25	206	168.39	$139.98	0.03	140.615	62	12.623	85	7.574	96	7.574	900	37.614	
		26	206	167.12	$166.40	0.03	139.353	62	12.623	85	7.574	96	7.574	900	38.876	
		27	206	165.86	$169.15	0.03	138.091	62	12.623	85	7.574	96	7.574	900	40.138	
		28	206	164.35	$166.40	0.03	136.576	62	12.623	85	7.574	96	7.574	900	41.653	
		29	206	162.58	$218.78	0.03	134.809	62	12.623	85	7.574	96	7.574	900	43.42	
		30	206	164.1	$181.58	0.03	136.324	62	12.623	85	7.574	96	7.574	900	41.905	
		31	206	166.37	$196.30	0.03	138.596	62	12.623	96	7.574	109	7.574	900	39.633	
		32	206	152.48	$196.51	0.03	124.711	62	12.623	96	7.574	109	7.574	900	53.518	
		33	206	156.77	$166.40	0.03	129.002	62	12.623	96	7.574	109	7.574	900	49.227	
		34	206	160.06	$166.40	0.03	132.284	62	12.623	96	7.574	109	7.574	900	45.945	
		35	206	161.07	$166.40	0.03	133.294	62	12.623	96	7.574	109	7.574	900	44.935	
		36	206	161.82	$196.29	0.03	134.051	62	12.623	96	7.574	109	7.574	900	44.178	
		37	206	159.8	$139.59	0.03	132.032	62	12.623	96	7.574	109	7.574	900	46.197	
		38	206	168.39	$109.09	0.03	133.042	62	15.147	96	10.098	109	10.098	900	37.615	
		39	206	150.21	$105.23	0.03	124.963	62	15.147	96	10.098	109	10.098	900	45.694	
		40	206	145.92	$102.27	0.03	120.672	62	15.147	96	10.098	109	10.098	900	49.985	
	OHC2201 OHC0	13	206	96.86	$82.25	0.03	71.611	57.6	15.147	68	10.098	83	10.098	900	99.046	
		16	206	178.74	$87.61	0.03	158.539	54.6	10.098	65.7	10.098	90	10.098	900	17.167	
		17	206	192.62	$102.72	0.03	162.326	54.6	10.098	65.7	10.098	90	10.098	900	13.38	
		18	206	186.56	$105.53	0.03	156.267	54.6	10.098	65.7	10.098	90	10.098	900	19.439	
		19	206	177.98	$134.95	0.03	147.684	54.6	10.098	65.7	10.098	90	10.098	900	28.022	
		20	206	169.65	$101.40	0.03	140.615	56	12.623	62	8.836	85	7.574	900	36.352	
		21	206	165.36	$123.45	0.03	136.324	56	12.623	62	8.836	85	7.574	900	40.643	
		22	206	175.96	$112.92	0.03	148.189	62	12.623	85	7.574	96	7.574	900	30.04	
		23	206	172.93	$140.01	0.03	145.159	62	12.623	85	7.574	96	7.574	900	33.07	
		24	206	170.41	$140.01	0.03	142.635	62	12.623	85	7.574	96	7.574	900	35.594	
		25	206	168.39	$140.01	0.03	140.615	62	12.623	85	7.574	96	7.574	900	37.614	

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Tranche dispatched

Tranche dispatched - setting price

Sum of Measure Values						Tranche	Measure Names									
						Tranche 1		Tranche 2		Tranche 3		Tranche 4		Tranche 5	
Trading date	POC/Unit	Trading period	Total offers MW	SPD generat	Final price $/MWh	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW
		26	206	167.12	$166.27	0.03	139.353	62	12.623	85	7.574	96	7.574	900	38.876
		27	206	165.86	$169.01	0.03	138.091	62	12.623	85	7.574	96	7.574	900	40.138
		28	206	164.35	$166.26	0.03	136.576	62	12.623	85	7.574	96	7.574	900	41.653
		29	206	162.58	$218.60	0.03	134.809	62	12.623	85	7.574	96	7.574	900	43.42
		30	206	164.1	$181.43	0.03	136.324	62	12.623	85	7.574	96	7.574	900	41.905
		31	206	166.37	$196.13	0.03	138.596	62	12.623	96	7.574	109	7.574	900	39.633
		32	206	152.48	$196.50	0.03	124.711	62	12.623	96	7.574	109	7.574	900	53.518
		33	206	156.77	$166.27	0.03	129.002	62	12.623	96	7.574	109	7.574	900	49.227
		34	206	160.06	$166.27	0.03	132.284	62	12.623	96	7.574	109	7.574	900	45.945
		35	206	161.07	$166.26	0.03	133.294	62	12.623	96	7.574	109	7.574	900	44.935
		36	206	161.82	$196.13	0.03	134.051	62	12.623	96	7.574	109	7.574	900	44.178
		37	206	159.8	$139.47	0.03	132.032	62	12.623	96	7.574	109	7.574	900	46.197
		38	206	165.06	$109.00	0.03	133.042	62	15.147	96	10.098	109	10.098	900	37.615
		39	206	150.21	$105.14	0.03	124.963	62	15.147	96	10.098	109	10.098	900	45.694
		40	206	145.92	$102.19	0.03	120.672	62	15.147	96	10.098	109	10.098	900	49.985
	WTK0111 WTK0	13	90	55	$82.32	0.01	55			985	30			5200	5
		16	90	55	$87.91	0.01	55			985	30			5200	5
		17	90	55	$103.07	0.01	55			985	30			5200	5
		18	90	55	$105.89	0.01	55			985	30			5200	5
		19	90	55	$135.40	0.01	55			985	30			5200	5
		20	90	55	$101.63	0.01	55			985	30			5200	5
		21	90	55	$123.58	0.01	55			985	30			5200	5
		22	90	55	$113.29	0.01	55			985	30			5200	5
		23	90	55	$140.47	0.01	55			985	30			5200	5
		24	90	55	$140.47	0.01	55			985	30			5200	5
		25	90	55	$140.47	0.01	55			985	30			5200	5
		26	90	55	$166.44	0.01	55			985	30			5200	5
		27	90	55	$169.21	0.01	55			985	30			5200	5
		28	90	55	$166.45	0.01	55			985	30			5200	5
		29	90	55	$218.82	0.01	55			985	30			5200	5
		30	90	55	$181.62	0.01	55			985	30			5200	5
		31	90	55	$196.34	0.01	55			985	30			5200	5
		32	90	55	$196.36	0.01	55			985	30			5200	5
		33	90	55	$166.44	0.01	55			985	30			5200	5
		34	90	55	$166.44	0.01	55			985	30			5200	5
		35	90	55	$166.45	0.01	55			985	30			5200	5
		36	90	55	$196.35	0.01	55			985	30			5200	5
		37	90	55	$139.63	0.01	55			985	30			5200	5
		38	90	55	$109.12	0.01	55			985	30			5200	5
		39	90	55	$105.26	0.01	55			985	30			5200	5
		40	90	55	$102.35	0.01	55			985	30			5200	5
Grand Total						4.68	40074.664	9664	2075	37516.2	2280	13741	1620	279630	10526.336

Predispatch offers

Tranche 1 Tranche 2 Tranche 3 Tranche 4 Tranche 5

PRS prices and offers for 28 Nov 19 17:30 (TP36)

Trading date	Trading period	Schedule	Participant	POC/unit	Colour	View
28 Nov 19	36	PRS	Meridian Energy	BEN2202 BEN0	Tranche	Table

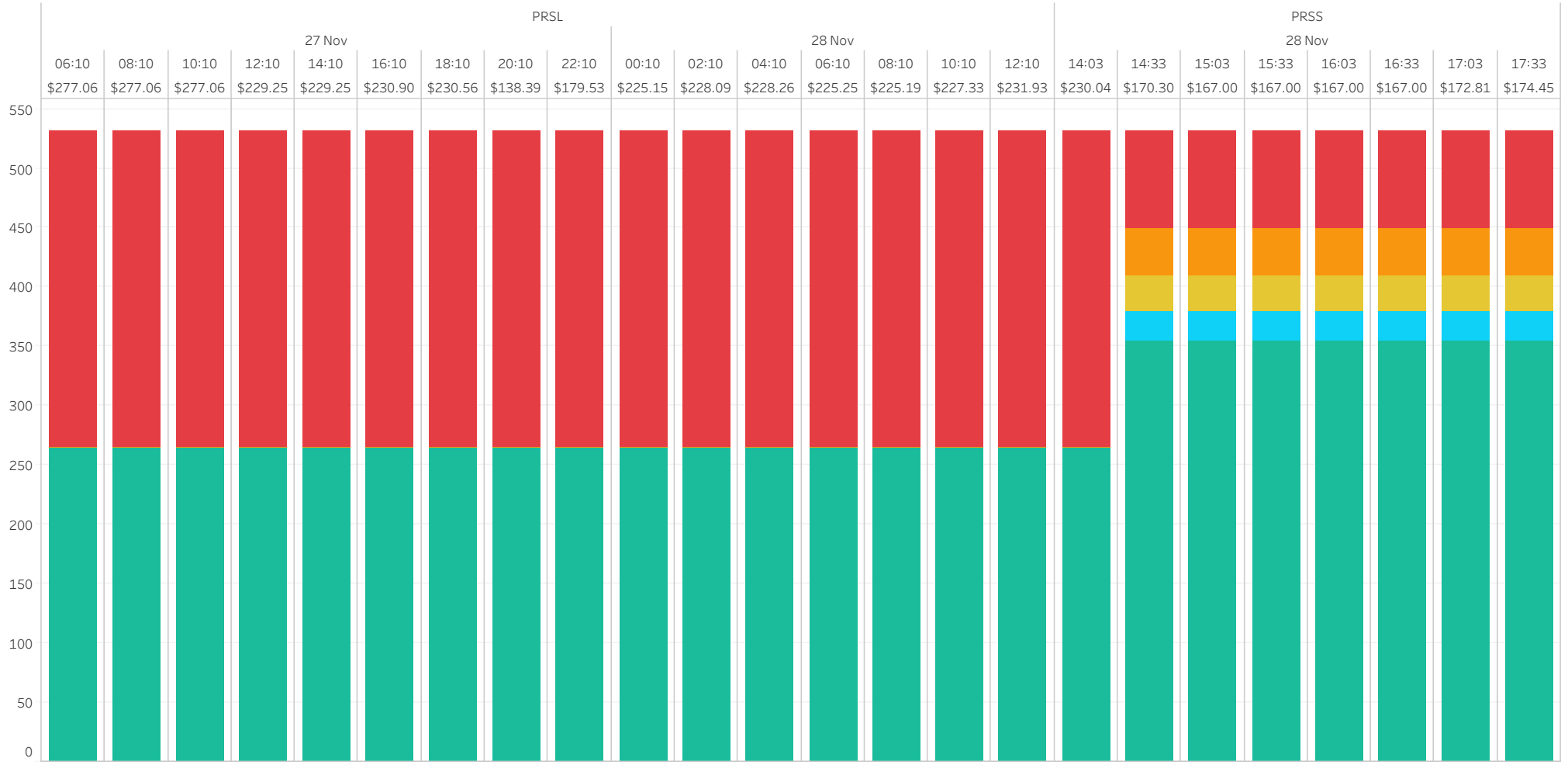
					Tranche 1		Tranche 2		Tranche 3		Tranche 4		Tranche 5	
POC/unit	Price schedule	Run time	Predispatch price $/MWh	Total offered MW	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW
BEN2202 BEN0	PRSL	27 Nov 19 06:10	$277.06	532.000	$0.03	265.000	$100.00	0.000	$350.00	0.000	$450.00	0.000	$975.00	267.000
		27 Nov 19 08:10	$277.06	532.000	$0.03	265.000	$100.00	0.000	$350.00	0.000	$450.00	0.000	$975.00	267.000
		27 Nov 19 10:10	$277.06	532.000	$0.03	265.000	$100.00	0.000	$350.00	0.000	$450.00	0.000	$975.00	267.000
		27 Nov 19 12:10	$229.25	532.000	$0.03	265.000	$100.00	0.000	$350.00	0.000	$450.00	0.000	$975.00	267.000
		27 Nov 19 14:10	$229.25	532.000	$0.03	265.000	$100.00	0.000	$350.00	0.000	$450.00	0.000	$975.00	267.000
		27 Nov 19 16:10	$230.90	532.000	$0.03	265.000	$100.00	0.000	$350.00	0.000	$450.00	0.000	$975.00	267.000
		27 Nov 19 18:10	$230.56	532.000	$0.03	265.000	$100.00	0.000	$350.00	0.000	$450.00	0.000	$975.00	267.000
		27 Nov 19 20:10	$138.39	532.000	$0.03	265.000	$100.00	0.000	$350.00	0.000	$450.00	0.000	$975.00	267.000
		27 Nov 19 22:10	$179.53	532.000	$0.03	265.000	$100.00	0.000	$350.00	0.000	$450.00	0.000	$975.00	267.000
		28 Nov 19 00:10	$225.15	532.000	$0.03	265.000	$100.00	0.000	$350.00	0.000	$450.00	0.000	$975.00	267.000
		28 Nov 19 02:10	$228.09	532.000	$0.03	265.000	$100.00	0.000	$350.00	0.000	$450.00	0.000	$975.00	267.000
		28 Nov 19 04:10	$228.26	532.000	$0.03	265.000	$100.00	0.000	$350.00	0.000	$450.00	0.000	$975.00	267.000
		28 Nov 19 06:10	$225.25	532.000	$0.03	265.000	$100.00	0.000	$350.00	0.000	$450.00	0.000	$975.00	267.000
		28 Nov 19 08:10	$225.19	532.000	$0.03	265.000	$100.00	0.000	$350.00	0.000	$450.00	0.000	$975.00	267.000
		28 Nov 19 10:10	$227.33	532.000	$0.03	265.000	$100.00	0.000	$350.00	0.000	$450.00	0.000	$975.00	267.000
		28 Nov 19 12:10	$231.93	532.000	$0.03	265.000	$100.00	0.000	$350.00	0.000	$450.00	0.000	$975.00	267.000
	PRSS	28 Nov 19 14:03	$230.04	532.000	$0.03	265.000	$100.00	0.000	$350.00	0.000	$450.00	0.000	$975.00	267.000
		28 Nov 19 14:33	$170.30	532.000	$0.03	354.000	$141.00	25.000	$167.00	30.000	$197.00	40.000	$975.00	83.000
		28 Nov 19 15:03	$167.00	532.000	$0.03	354.000	$141.00	25.000	$167.00	30.000	$197.00	40.000	$975.00	83.000
		28 Nov 19 15:33	$167.00	532.000	$0.03	354.000	$141.00	25.000	$167.00	30.000	$197.00	40.000	$975.00	83.000
		28 Nov 19 16:03	$167.00	532.000	$0.03	354.000	$141.00	25.000	$167.00	30.000	$197.00	40.000	$975.00	83.000
		28 Nov 19 16:33	$167.00	532.000	$0.03	354.000	$141.00	25.000	$167.00	30.000	$197.00	40.000	$975.00	83.000
		28 Nov 19 17:03	$172.81	532.000	$0.03	354.000	$141.00	25.000	$167.00	30.000	$197.00	40.000	$975.00	83.000
		28 Nov 19 17:33	$174.45	532.000	$0.03	354.000	$141.00	25.000	$167.00	30.000	$197.00	40.000	$975.00	83.000

Predispatch offers

PRS prices and offers for 28 Nov 19 17:30 (TP36)

Tranche 1 Tranche 2 Tranche 3 Tranche 4 Tranche 5

Trading date	Trading period	Schedule	Participant	POC/unit	Colour	View
28 Nov 19	36	PRS	Meridian Energy	BEN2202 BEN0	Tranche	Chart



Predispatch offers

Tranche 1 Tranche 2 Tranche 3 Tranche 4 Tranche 5

PRS prices and offers for 28 Nov 19 15:00 (TP31)

Trading date	Trading period	Schedule	Participant	POC/unit	Colour	View
28 Nov 19	31	PRS	Meridian Energy	BEN2202 BEN0	Tranche	Table

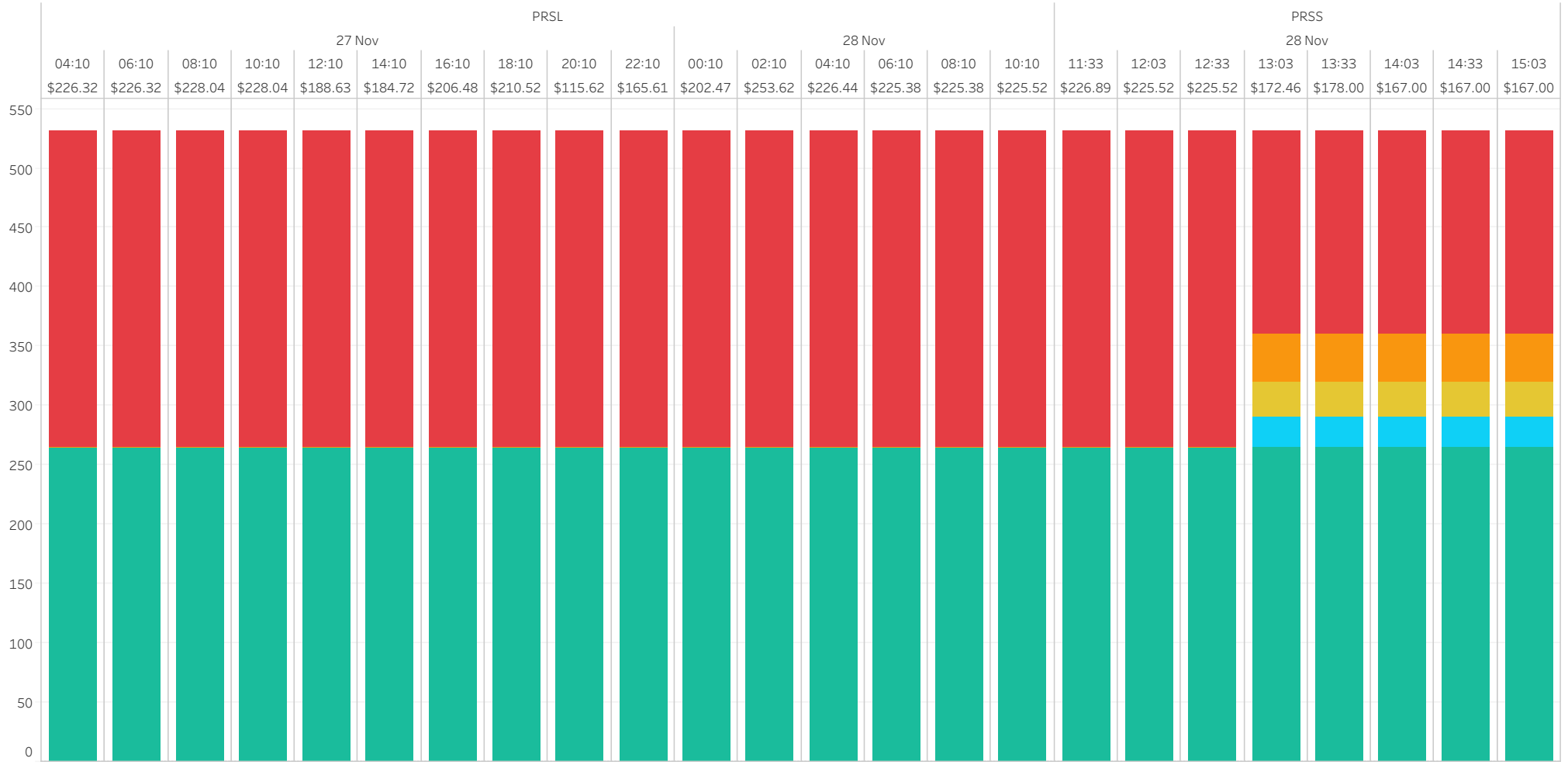
					Tranche 1		Tranche 2		Tranche 3		Tranche 4		Tranche 5	
POC/unit	Price schedule	Run time	Predispatch price $/MWh	Total offered MW	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW
BEN2202 BEN0	PRSL	27 Nov 19 04:10	$226.32	532.000	$0.03	265.000	$100.00	0.000	$350.00	0.000	$450.00	0.000	$975.00	267.000
		27 Nov 19 06:10	$226.32	532.000	$0.03	265.000	$100.00	0.000	$350.00	0.000	$450.00	0.000	$975.00	267.000
		27 Nov 19 08:10	$228.04	532.000	$0.03	265.000	$100.00	0.000	$350.00	0.000	$450.00	0.000	$975.00	267.000
		27 Nov 19 10:10	$228.04	532.000	$0.03	265.000	$100.00	0.000	$350.00	0.000	$450.00	0.000	$975.00	267.000
		27 Nov 19 12:10	$188.63	532.000	$0.03	265.000	$100.00	0.000	$350.00	0.000	$450.00	0.000	$975.00	267.000
		27 Nov 19 14:10	$184.72	532.000	$0.03	265.000	$100.00	0.000	$350.00	0.000	$450.00	0.000	$975.00	267.000
		27 Nov 19 16:10	$206.48	532.000	$0.03	265.000	$100.00	0.000	$350.00	0.000	$450.00	0.000	$975.00	267.000
		27 Nov 19 18:10	$210.52	532.000	$0.03	265.000	$100.00	0.000	$350.00	0.000	$450.00	0.000	$975.00	267.000
		27 Nov 19 20:10	$115.62	532.000	$0.03	265.000	$100.00	0.000	$350.00	0.000	$450.00	0.000	$975.00	267.000
		27 Nov 19 22:10	$165.61	532.000	$0.03	265.000	$100.00	0.000	$350.00	0.000	$450.00	0.000	$975.00	267.000
		28 Nov 19 00:10	$202.47	532.000	$0.03	265.000	$100.00	0.000	$350.00	0.000	$450.00	0.000	$975.00	267.000
		28 Nov 19 02:10	$253.62	532.000	$0.03	265.000	$100.00	0.000	$350.00	0.000	$450.00	0.000	$975.00	267.000
		28 Nov 19 04:10	$226.44	532.000	$0.03	265.000	$100.00	0.000	$350.00	0.000	$450.00	0.000	$975.00	267.000
		28 Nov 19 06:10	$225.38	532.000	$0.03	265.000	$100.00	0.000	$350.00	0.000	$450.00	0.000	$975.00	267.000
		28 Nov 19 08:10	$225.38	532.000	$0.03	265.000	$100.00	0.000	$350.00	0.000	$450.00	0.000	$975.00	267.000
		28 Nov 19 10:10	$225.52	532.000	$0.03	265.000	$100.00	0.000	$350.00	0.000	$450.00	0.000	$975.00	267.000
	PRSS	28 Nov 19 11:33	$226.89	532.000	$0.03	265.000	$100.00	0.000	$350.00	0.000	$450.00	0.000	$975.00	267.000
		28 Nov 19 12:03	$225.52	532.000	$0.03	265.000	$100.00	0.000	$350.00	0.000	$450.00	0.000	$975.00	267.000
		28 Nov 19 12:33	$225.52	532.000	$0.03	265.000	$100.00	0.000	$350.00	0.000	$450.00	0.000	$975.00	267.000
		28 Nov 19 13:03	$172.46	532.000	$0.03	265.000	$141.00	25.000	$167.00	30.000	$197.00	40.000	$975.00	172.000
		28 Nov 19 13:33	$178.00	532.000	$0.03	265.000	$141.00	25.000	$167.00	30.000	$197.00	40.000	$975.00	172.000
		28 Nov 19 14:03	$167.00	532.000	$0.03	265.000	$141.00	25.000	$167.00	30.000	$197.00	40.000	$975.00	172.000
		28 Nov 19 14:33	$167.00	532.000	$0.03	265.000	$141.00	25.000	$167.00	30.000	$197.00	40.000	$975.00	172.000
		28 Nov 19 15:03	$167.00	532.000	$0.03	265.000	$141.00	25.000	$167.00	30.000	$197.00	40.000	$975.00	172.000

Predispatch offers

PRS prices and offers for 28 Nov 19 15:00 (TP31)

Tranche 1 Tranche 2 Tranche 3 Tranche 4 Tranche 5

Trading date	Trading period	Schedule	Participant	POC/unit	Colour	View
28 Nov 19	31	PRS	Meridian Energy	BEN2202 BEN0	Tranche	Chart



29-Nov-19

Tranche dispatched

Tranche partly - setting price

Sum of Measure Values							Tranche	Measure Names									
							Tranche 1		Tranche 2		Tranche 3		Tranche 4		Tranche 5	
Trading date	POC/Unit	Trading period	Total offers MW	SPD generat	Final price $/MWh	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW
29/11/2019	AVI2201 AVI0	13	214	133.03	$84.59	0.03	96.319	41	15.735	61.7	10.49	81.8	10.49	900	80.966
		14	214	173.87	$89.63	0.03	137.159	41	15.735	61.7	10.49	89	10.49	900	40.126
		15	214	182.75	$89.39	0.03	146.031	41	15.735	61.7	10.49	89	10.49	900	31.254
		16	214	202.84	$99.99	0.03	166.121	41	15.735	61.7	10.49	89	10.49	900	11.164
		17	214	209.65	$141.98	0.03	172.939	41	15.735	61.7	10.49	89	10.49	900	4.346
		18	214	204.41	$144.00	0.03	167.694	41	15.735	61.7	10.49	89	10.49	900	9.591
		19	214	196.07	$143.89	0.03	159.356	41	15.735	61.7	10.49	89	10.49	900	17.929
		20	214	190.17	$144.60	0.03	153.453	41	15.735	61.7	10.49	89	10.49	900	23.832
		21	214	187.81	$142.19	0.03	151.094	41	15.735	61.7	10.49	89	10.49	900	26.191
		22	214	186.57	$142.90	0.03	149.855	41	15.735	61.7	10.49	89	10.49	900	27.43
		23	214	185.41	$144.60	0.03	148.699	41	15.735	61.7	10.49	89	10.49	900	28.586
		24	214	185.68	$144.60	0.03	148.961	41	15.735	61.7	10.49	89	10.49	900	28.324
		25	214	183.58	$144.54	0.03	146.863	41	15.735	62	10.49	92	10.49	900	30.422
		26	214	183.58	$142.15	0.03	146.863	41	15.735	62	10.49	92	10.49	900	30.422
		27	214	180.96	$201.44	0.03	144.24	41	15.735	62	10.49	92	10.49	900	33.045
		28	214	178.33	$201.44	0.03	141.618	41	15.735	62	10.49	92	10.49	900	35.667
		29	214	178.33	$201.34	0.03	141.618	41	15.735	62	10.49	92	10.49	900	35.667
		30	214	180.96	$139.62	0.03	144.24	41	15.735	62	10.49	92	10.49	900	33.045
		31	214	193.54	$128.58	0.03	156.828	41	15.735	62	10.49	92	10.49	900	20.457
		32	214	197.48	$103.48	0.03	160.762	41	15.735	62	10.49	92	10.49	900	16.523
		33	214	199.84	$96.94	0.03	163.123	41	15.735	62	10.49	92	10.49	900	14.162
		34	214	204.3	$92.15	0.03	164.958	41	15.735	58	10.49	92	13.113	900	9.704
	BEN2202 BEN0	13	532	265	$84.82	0.03	265	100	40	350	40			975	187
		14	532	265	$89.89	0.03	265	100	40	145	40			975	187
		15	532	354	$89.64	0.03	354	100	40	145	40			975	98
		16	532	394	$100.26	0.03	354	100	40	145	40			975	98
		17	532	394	$142.37	0.03	354	100	40	145	40			975	98
		18	532	394	$144.39	0.03	354	100	40	145	40			975	98
		19	532	394	$144.29	0.03	354	100	40	145	40			975	98
		20	532	398.26	$145.00	0.03	354	100	40	145	40			975	98
		21	532	394	$142.59	0.03	354	100	40	145	40			975	98
		22	532	394	$143.30	0.03	354	100	40	145	40			975	98
		23	532	394.8	$145.00	0.03	354	100	40	145	40			975	98
		24	532	397.63	$145.00	0.03	354	100	40	145	40			975	98
		25	532	434	$144.94	0.03	354	100	40	140	40			975	98
		26	532	434	$142.86	0.03	354	100	40	140	40			975	98
		27	532	434	$201.96	0.03	354	104	40	140	40			975	98
		28	532	434	$201.96	0.03	354	104	40	140	40			975	98
		29	532	434	$201.89	0.03	354	104	40	140	40			975	98
		30	532	431.37	$140.00	0.03	354	104	40	140	40			975	98
		31	532	394	$129.23	0.03	354	104	40	140	40			975	98
		32	532	371.69	$104.00	0.03	354	104	40	140	40			975	98
		33	532	354	$97.43	0.03	354	104	40	140	40			975	98
		34	532	354	$92.65	0.03	354	130	40	195	50			975	88

29-Nov-19

Tranche dispatched

Tranche partly - setting price

Sum of Measure Values						Tranche	Measure Names									
						Tranche 1		Tranche 2		Tranche 3		Tranche 4		Tranche 5	
Trading date	POC/Unit	Trading period	Total offers MW	SPD generat	Final price $/MWh	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW
	MAN2201 MAN0	13	738	675	$76.96	0.02	675							980	63
		14	738	675	$81.77	0.02	675							980	63
		15	738	675	$82.77	0.02	675							980	63
		16	738	675	$92.63	0.02	675							980	63
		17	738	675	$131.53	0.02	675							980	63
		18	738	675	$133.40	0.02	675							980	63
		19	738	675	$132.65	0.02	675							980	63
		20	738	675	$133.24	0.02	675							980	63
		21	738	675	$130.43	0.02	675							980	63
		22	738	675	$131.08	0.02	675							980	63
		23	738	675	$132.64	0.02	675							980	63
		24	738	675	$132.67	0.02	675							980	63
		25	738	675	$132.62	0.02	675							980	63
		26	738	675	$130.27	0.02	675							980	63
		27	738	675	$184.19	0.02	675							980	63
		28	738	675	$184.19	0.02	675							980	63
		29	738	675	$184.75	0.02	675							980	63
		30	738	675	$128.08	0.02	675							980	63
		31	738	675	$117.77	0.02	675							980	63
		32	738	675	$94.78	0.02	675							980	63
		33	738	675	$88.79	0.02	675							980	63
		34	738	675	$84.42	0.02	675							980	63
	OHA2201 OHA0	13	190	118.12	$83.98	0.03	85.516	41	13.971	61.7	9.314	81.8	9.314	900	71.885
		14	190	146.39	$89.00	0.03	121.777	41	13.971	61.7	9.314	89	9.314	900	35.624
		15	190	152.94	$88.82	0.03	129.654	41	13.971	61.7	9.314	89	9.314	900	27.747
		16	190	180.09	$99.36	0.03	147.489	41	13.971	61.7	9.314	89	9.314	900	9.912
		17	190	186.14	$141.08	0.03	153.545	41	13.971	61.7	9.314	89	9.314	900	3.856
		18	190	181.49	$143.08	0.03	148.888	41	13.971	61.7	9.314	89	9.314	900	8.513
		19	190	174.08	$142.99	0.03	141.485	41	13.971	61.7	9.314	89	9.314	900	15.916
		20	190	168.84	$143.69	0.03	136.243	41	13.971	61.7	9.314	89	9.314	900	21.158
		21	190	166.75	$141.30	0.03	134.149	41	13.971	61.7	9.314	89	9.314	900	23.252
		22	190	165.65	$142.01	0.03	133.049	41	13.971	61.7	9.314	89	9.314	900	24.352
		23	190	164.62	$143.69	0.03	132.021	41	13.971	61.7	9.314	89	9.314	900	25.38
		24	190	164.85	$143.69	0.03	132.255	41	13.971	61.7	9.314	89	9.314	900	25.146
		25	190	162.99	$143.63	0.03	130.391	41	13.971	62	9.314	92	9.314	900	27.01
		26	190	162.99	$141.51	0.03	130.391	41	13.971	62	9.314	92	9.314	900	27.01
		27	190	160.66	$200.09	0.03	128.064	41	13.971	62	9.314	92	9.314	900	29.337
		28	190	158.33	$200.09	0.03	125.734	41	13.971	62	9.314	92	9.314	900	31.667
		29	190	158.33	$200.06	0.03	125.734	41	13.971	62	9.314	92	9.314	900	31.667
		30	190	160.66	$138.73	0.03	128.064	41	13.971	62	9.314	92	9.314	900	29.337
		31	190	171.84	$128.01	0.03	139.24	41	13.971	62	9.314	92	9.314	900	18.161
		32	190	175.33	$103.02	0.03	142.734	41	13.971	62	9.314	92	9.314	900	14.667
		33	190	177.43	$96.51	0.03	144.827	41	13.971	62	9.314	92	9.314	900	12.574
		34	190	169.74	$91.82	0.03	146.458	41	13.971	58	9.314	92	11.641	900	8.616

29-Nov-19

Tranche dispatched

Tranche partly - setting price

Sum of Measure Values						Tranche	Measure Names								
						Tranche 1		Tranche 2		Tranche 3		Tranche 4		Tranche 5	
Trading date	POC/Unit	Trading period	Total offers MW	SPD generat	Final price $/MWh	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW
	OHB2201 OHB0	13	206	128.06	$84.14	0.03	92.718	41	15.147	61.7	10.098	81.8	10.098	900	77.939
		14	206	167.38	$89.17	0.03	132.032	41	15.147	61.7	10.098	89	10.098	900	38.625
		15	206	165.82	$88.98	0.03	140.572	41	15.147	61.7	10.098	89	10.098	900	30.085
		16	206	195.25	$99.53	0.03	159.911	41	15.147	61.7	10.098	89	10.098	900	10.746
		17	206	201.82	$141.33	0.03	166.474	41	15.147	61.7	10.098	89	10.098	900	4.183
		18	206	196.77	$143.34	0.03	161.425	41	15.147	61.7	10.098	89	10.098	900	9.232
		19	206	188.74	$143.25	0.03	153.399	41	15.147	61.7	10.098	89	10.098	900	17.258
		20	206	183.06	$143.95	0.03	147.716	41	15.147	61.7	10.098	89	10.098	900	22.941
		21	206	180.79	$141.55	0.03	145.446	41	15.147	61.7	10.098	89	10.098	900	25.211
		22	206	179.6	$142.26	0.03	144.253	41	15.147	61.7	10.098	89	10.098	900	26.404
		23	206	178.48	$143.95	0.03	143.14	41	15.147	61.7	10.098	89	10.098	900	27.517
		24	206	178.74	$143.95	0.03	143.392	41	15.147	61.7	10.098	89	10.098	900	27.265
		25	206	176.72	$143.89	0.03	141.373	41	15.147	62	10.098	92	10.098	900	29.284
		26	206	176.72	$141.77	0.03	141.373	41	15.147	62	10.098	92	10.098	900	29.284
		27	206	174.19	$200.46	0.03	138.848	41	15.147	62	10.098	92	10.098	900	31.809
		28	206	171.67	$200.46	0.03	136.324	41	15.147	62	10.098	92	10.098	900	34.333
		29	206	171.67	$200.42	0.03	136.324	41	15.147	62	10.098	92	10.098	900	34.333
		30	206	174.19	$138.98	0.03	138.848	41	15.147	62	10.098	92	10.098	900	31.809
		31	206	186.31	$128.24	0.03	150.966	41	15.147	62	10.098	92	10.098	900	19.691
		32	206	190.1	$103.21	0.03	154.752	41	15.147	62	10.098	92	10.098	900	15.905
		33	206	192.37	$96.68	0.03	157.025	41	15.147	62	10.098	92	10.098	900	13.632
		34	206	184.04	$91.98	0.03	158.792	41	15.147	58	10.098	92	12.623	900	9.34
	OHC2201 OHC0	13	206	128.06	$84.17	0.03	92.718	41	15.147	61.7	10.098	81.8	10.098	900	77.939
		14	206	167.38	$89.19	0.03	132.032	41	15.147	61.7	10.098	89	10.098	900	38.625
		15	206	169.61	$89.00	0.03	140.572	41	15.147	61.7	10.098	89	10.098	900	30.085
		16	206	195.25	$99.55	0.03	159.911	41	15.147	61.7	10.098	89	10.098	900	10.746
		17	206	201.82	$141.36	0.03	166.474	41	15.147	61.7	10.098	89	10.098	900	4.183
		18	206	196.77	$143.37	0.03	161.425	41	15.147	61.7	10.098	89	10.098	900	9.232
		19	206	188.74	$143.28	0.03	153.399	41	15.147	61.7	10.098	89	10.098	900	17.258
		20	206	183.06	$143.98	0.03	147.716	41	15.147	61.7	10.098	89	10.098	900	22.941
		21	206	180.79	$141.58	0.03	145.446	41	15.147	61.7	10.098	89	10.098	900	25.211
		22	206	179.6	$142.29	0.03	144.253	41	15.147	61.7	10.098	89	10.098	900	26.404
		23	206	178.48	$143.98	0.03	143.14	41	15.147	61.7	10.098	89	10.098	900	27.517
		24	206	178.74	$143.98	0.03	143.392	41	15.147	61.7	10.098	89	10.098	900	27.265
		25	206	176.72	$143.92	0.03	141.373	41	15.147	62	10.098	92	10.098	900	29.284
		26	206	176.72	$141.81	0.03	141.373	41	15.147	62	10.098	92	10.098	900	29.284
		27	206	174.19	$200.50	0.03	138.848	41	15.147	62	10.098	92	10.098	900	31.809
		28	206	171.67	$200.50	0.03	136.324	41	15.147	62	10.098	92	10.098	900	34.333
		29	206	171.67	$200.46	0.03	136.324	41	15.147	62	10.098	92	10.098	900	34.333
		30	206	174.19	$139.01	0.03	138.848	41	15.147	62	10.098	92	10.098	900	31.809
		31	206	186.31	$128.28	0.03	150.966	41	15.147	62	10.098	92	10.098	900	19.691
		32	206	190.1	$103.23	0.03	154.752	41	15.147	62	10.098	92	10.098	900	15.905
		33	206	192.37	$96.71	0.03	157.025	41	15.147	62	10.098	92	10.098	900	13.632
		34	206	193.53	$92.00	0.03	158.792	41	15.147	58	10.098	92	12.623	900	9.34

29-Nov-19

Tranche dispatched

Tranche partly - setting price

Sum of Measure Values						Tranche	Measure Names									
						Tranche 1		Tranche 2		Tranche 3		Tranche 4		Tranche 5	
Trading date	POC/Unit	Trading period	Total offers MW	SPD generat	Final price $/MWh	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW
	WTK0111 WTK0	13	90	55		0.01	55			985	30			5200	5
		14	90	55		0.01	55			985	30			5200	5
		15	90	55		0.01	55			985	30			5200	5
		16	90	55		0.01	55			985	30			5200	5
		17	90	55		0.01	55			985	30			5200	5
		18	90	55		0.01	55			985	30			5200	5
		19	90	55		0.01	55			985	30			5200	5
		20	90	55		0.01	55			985	30			5200	5
		21	90	55		0.01	55			985	30			5200	5
		22	90	55		0.01	55			985	30			5200	5
		23	90	55		0.01	55			985	30			5200	5
		24	90	55		0.01	55			985	30			5200	5
		25	90	55		0.01	55			985	30			5200	5
		26	90	55		0.01	55			985	30			5200	5
		27	90	55		0.01	55			985	30			5200	5
		28	90	55		0.01	55			985	30			5200	5
		29	90	55		0.01	55			985	30			5200	5
		30	90	55		0.01	55			985	30			5200	5
		31	90	55		0.01	55			985	30			5200	5
		32	90	55		0.01	55			985	30			5200	5
		33	90	55		0.01	55			985	30			5200	5
		34	90	55		0.01	55			985	30			5200	5
Grand Total						3.96	36286.708	5866	2200	30495.6	2430	7923.2	890	236610	6065.292

Predispatch offers

Tranche 1 Tranche 2 Tranche 3 Tranche 4 Tranche 5

PRS prices and offers for 29 Nov 19 09:30 (TP20)

Trading date	Trading period	Schedule	Participant	POC/unit	Colour	View
29 Nov 19	20	PRS	Meridian Energy	BEN2202 BEN0	Tranche	Table

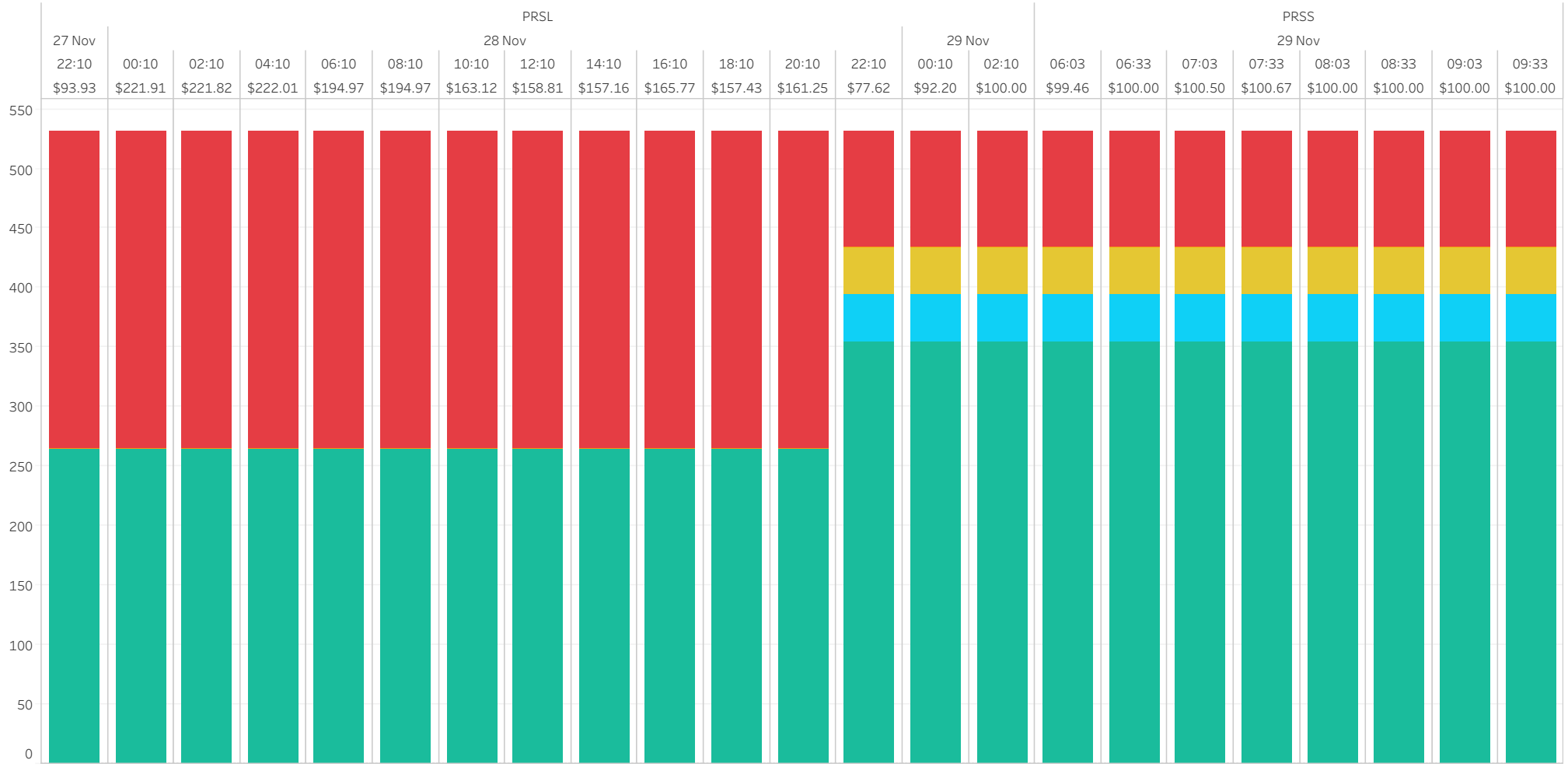
					Tranche 1		Tranche 2		Tranche 3		Tranche 4		Tranche 5	
POC/unit	Price schedule	Run time	Predispatch price $/MWh	Total offered MW	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW
BEN2202 BEN0	PRSL	27 Nov 19 22:10	$93.93	532.000	$0.03	265.000	$100.00	0.000	$350.00	0.000	$450.00	0.000	$975.00	267.000
		28 Nov 19 00:10	$221.91	532.000	$0.03	265.000	$100.00	0.000	$350.00	0.000	$450.00	0.000	$975.00	267.000
		28 Nov 19 02:10	$221.82	532.000	$0.03	265.000	$100.00	0.000	$350.00	0.000	$450.00	0.000	$975.00	267.000
		28 Nov 19 04:10	$222.01	532.000	$0.03	265.000	$100.00	0.000	$350.00	0.000	$450.00	0.000	$975.00	267.000
		28 Nov 19 06:10	$194.97	532.000	$0.03	265.000	$100.00	0.000	$350.00	0.000	$450.00	0.000	$975.00	267.000
		28 Nov 19 08:10	$194.97	532.000	$0.03	265.000	$100.00	0.000	$350.00	0.000	$450.00	0.000	$975.00	267.000
		28 Nov 19 10:10	$163.12	532.000	$0.03	265.000	$100.00	0.000	$350.00	0.000	$450.00	0.000	$975.00	267.000
		28 Nov 19 12:10	$158.81	532.000	$0.03	265.000	$100.00	0.000	$350.00	0.000	$450.00	0.000	$975.00	267.000
		28 Nov 19 14:10	$157.16	532.000	$0.03	265.000	$100.00	0.000	$350.00	0.000	$450.00	0.000	$975.00	267.000
		28 Nov 19 16:10	$165.77	532.000	$0.03	265.000	$100.00	0.000	$350.00	0.000	$450.00	0.000	$975.00	267.000
		28 Nov 19 18:10	$157.43	532.000	$0.03	265.000	$100.00	0.000	$350.00	0.000	$450.00	0.000	$975.00	267.000
		28 Nov 19 20:10	$161.25	532.000	$0.03	265.000	$100.00	0.000	$350.00	0.000	$450.00	0.000	$975.00	267.000
		28 Nov 19 22:10	$77.62	532.000	$0.03	354.000	$100.00	40.000	$350.00	40.000	$450.00	0.000	$975.00	98.000
		29 Nov 19 00:10	$92.20	532.000	$0.03	354.000	$100.00	40.000	$350.00	40.000	$450.00	0.000	$975.00	98.000
		29 Nov 19 02:10	$100.00	532.000	$0.03	354.000	$100.00	40.000	$350.00	40.000	$450.00	0.000	$975.00	98.000
	PRSS	29 Nov 19 06:03	$99.46	532.000	$0.03	354.000	$100.00	40.000	$145.00	40.000	$450.00	0.000	$975.00	98.000
		29 Nov 19 06:33	$100.00	532.000	$0.03	354.000	$100.00	40.000	$145.00	40.000	$450.00	0.000	$975.00	98.000
		29 Nov 19 07:03	$100.50	532.000	$0.03	354.000	$100.00	40.000	$145.00	40.000	$450.00	0.000	$975.00	98.000
		29 Nov 19 07:33	$100.67	532.000	$0.03	354.000	$100.00	40.000	$145.00	40.000	$450.00	0.000	$975.00	98.000
		29 Nov 19 08:03	$100.00	532.000	$0.03	354.000	$100.00	40.000	$145.00	40.000	$450.00	0.000	$975.00	98.000
		29 Nov 19 08:33	$100.00	532.000	$0.03	354.000	$100.00	40.000	$145.00	40.000	$450.00	0.000	$975.00	98.000
		29 Nov 19 09:03	$100.00	532.000	$0.03	354.000	$100.00	40.000	$145.00	40.000	$450.00	0.000	$975.00	98.000
		29 Nov 19 09:33	$100.00	532.000	$0.03	354.000	$100.00	40.000	$145.00	40.000	$450.00	0.000	$975.00	98.000

Predispatch offers

PRS prices and offers for 29 Nov 19 09:30 (TP20)

Tranche 1 Tranche 2 Tranche 3 Tranche 4 Tranche 5

Trading date	Trading period	Schedule	Participant	POC/unit	Colour	View
29 Nov 19	20	PRS	Meridian Energy	BEN2202 BEN0	Tranche	Chart



2-Dec-19

Tranche dispatched

Tranche dispatched - setting price

Sum of Measure Values						Tranche	Measure Names									
						Tranche 1		Tranche 2		Tranche 3		Tranche 4		Tranche 5	
Trading date	POC/Unit	Trading period	Total offers MW	SPD generati	Final price $/MWh	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW
2/12/2019	AVI2201 AVI0	13	214	87.59	$83.75	0.03	61.368	21	7.868	35	7.868	48	10.49	900	126.406
		16	214	169.15	$117.75	0.03	135.061	41	10.49	54	13.113	64	10.49	900	44.846
		17	214	156.83	$181.90	0.03	122.735	41	10.49	54	13.113	64	10.49	900	57.172
		18	214	161.29	$117.78	0.03	127.194	41	10.49	54	13.113	64	10.49	900	52.713
		19	214	159.71	$191.10	0.03	125.62	41	10.49	57	13.113	64	10.49	900	54.287
		20	214	157.09	$186.21	0.03	122.998	41	10.49	57	13.113	64	10.49	900	56.909
		21	214	159.98	$184.35	0.03	125.882	41	10.49	57	13.113	64	10.49	900	54.025
		22	214	156.04	$150.32	0.03	121.949	41	10.49	57	13.113	64	10.49	900	57.958
		23	214	164.7	$189.61	0.03	137.159	63	13.113	84	10.49	105	3.934	900	49.304
		24	214	162.86	$148.45	0.03	135.324	63	13.113	84	10.49	105	3.934	900	51.139
		25	214	166.53	$127.03	0.03	138.995	63	13.113	84	10.49	105	3.934	900	47.468
		26	214	165.22	$194.51	0.03	137.684	63	13.113	84	10.49	105	3.934	900	48.779
		27	214	187.55	$193.22	0.03	155.992	63	15.028	84	12.022	105	4.508	900	26.45
		28	214	177.93	$228.51	0.03	146.374	63	15.028	84	12.022	105	4.508	900	36.068
		29	214	184.24	$385.64	0.03	152.685	63	15.028	84	12.022	105	4.508	900	29.757
		30	214	185.45	$389.59	0.03	153.888	63	15.028	84	12.022	105	4.508	900	28.554
		31	214	187.55	$382.22	0.03	155.992	63	15.028	84	12.022	105	4.508	900	26.45
		32	214	186.05	$337.98	0.03	154.489	63	15.028	84	12.022	105	4.508	900	27.953
		33	214	182.01	$179.64	0.03	142.667	50	13.113	80	13.113	113	13.113	900	31.994
		34	214	184.63	$136.12	0.03	145.289	50	13.113	80	13.113	113	13.113	900	29.372
	BEN2202 BEN0	13	532	266	$83.96	0.03	176	61	50	81	40	92	40	975	226
		16	532	344.99	$118.00	0.03	265	69	30	83	30	118	40	975	167
		17	532	454	$182.24	0.03	354	69	30	83	30	118	40	975	78
		18	532	445.16	$118.00	0.03	354	69	30	83	30	118	40	975	78
		19	532	454	$191.47	0.03	354	69	30	83	30	118	40	975	78
		20	532	454	$186.57	0.03	354	69	30	83	30	118	40	975	78
		21	532	454	$184.70	0.03	354	69	30	83	30	118	40	975	78
		22	532	454	$150.61	0.03	354	69	30	83	30	118	40	975	78
		23	532	387.66	$190.00	0.03	354	121	30	190	30	375	40	975	78
		24	532	384	$148.75	0.03	354	121	30	190	30	375	40	975	78
		25	532	384	$127.29	0.03	354	113	30	190	30	370	40	975	78
		26	532	405.52	$190.00	0.03	354	113	30	190	30	370	40	975	78
		27	532	410.05	$190.00	0.03	354	113	30	190	30	370	40	975	78
		28	532	414	$219.34	0.03	354	113	30	190	30	370	40	975	78
		29	532	435.2	$365.00	0.03	354	113	30	190	30	365	40	975	78
		30	532	454	$370.55	0.03	354	113	30	190	30	365	40	975	78
		31	532	440.57	$365.00	0.03	354	113	30	190	30	365	40	975	78
		32	532	414	$338.58	0.03	354	113	30	190	30	365	40	975	78
		33	532	364.39	$180.00	0.03	354	180	50	350	50			975	78
		34	532	354	$136.39	0.03	354	180	50	350	50			975	78
	MAN2201 MAN0	13	738	738	$75.36	0.02	738								
		16	738	738	$105.92	0.02	738								
		17	738	738	$165.40	0.02	738								
		18	738	738	$107.20	0.02	738								
		19	738	738	$173.95	0.02	738								
		20	738	738	$169.50	0.02	738								
		21	738	738	$167.80	0.02	738								
		22	738	738	$136.83	0.02	738								
		23	738	738	$172.42	0.02	738								
		24	738	738	$134.91	0.02	738								

2-Dec-19

Tranche dispatched

Tranche dispatched - setting price

Sum of Measure Values						Tranche	Measure Names									
						Tranche 1		Tranche 2		Tranche 3		Tranche 4		Tranche 5	
Trading date	POC/Unit	Trading period	Total offers MW	SPD generati	Final price $/MWh	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW
		25	738	738	$115.44	0.02	738								
		26	738	738	$117.20	0.02	738								
		27	738	738	$127.38	0.02	738								
		28	738	738	$86.85	0.02	738								
		29	738	738	$58.79	0.02	738								
		30	738	738	$81.37	0.02	738								
		31	738	738	$119.73	0.02	738								
		32	738	738	$307.84	0.02	738								
		33	738	738	$163.27	0.02	738								
		34	738	738	$123.79	0.02	738								
	OHA2201 OHA0	13	190	77.77	$83.69	0.03	54.484	21	6.984	35	6.984	48	9.314	900	112.234
		16	190	150.18	$116.95	0.03	119.915	41	9.314	54	11.641	64	9.314	900	39.816
		17	190	139.24	$181.22	0.03	108.971	41	9.314	54	11.641	64	9.314	900	50.76
		18	190	143.2	$117.11	0.03	112.928	41	9.314	54	11.641	64	9.314	900	46.803
		19	190	141.8	$190.04	0.03	111.532	41	9.314	57	11.641	64	9.314	900	48.199
		20	190	139.47	$185.17	0.03	109.202	41	9.314	57	11.641	64	9.314	900	50.529
		21	190	142.04	$183.31	0.03	111.766	41	9.314	57	11.641	64	9.314	900	47.965
		22	190	138.54	$149.48	0.03	108.271	41	9.314	57	11.641	64	9.314	900	51.46
		23	190	146.22	$188.30	0.03	121.777	63	11.641	84	9.314	105	3.492	900	43.776
		24	190	144.59	$147.42	0.03	120.146	63	11.641	84	9.314	105	3.492	900	45.407
		25	190	147.85	$126.15	0.03	123.407	63	11.641	84	9.314	105	3.492	900	42.146
		26	190	146.69	$182.33	0.03	122.242	63	11.641	84	9.314	105	3.492	900	43.311
		27	190	166.52	$183.67	0.03	138.496	63	13.342	84	10.674	105	4.004	900	23.484
		28	190	157.98	$205.82	0.03	129.958	63	13.342	84	10.674	105	4.004	900	32.022
		29	190	163.58	$335.22	0.03	135.563	63	13.342	84	10.674	105	4.004	900	26.417
		30	190	164.65	$343.39	0.03	136.628	63	13.342	84	10.674	105	4.004	900	25.352
		31	190	166.52	$339.40	0.03	138.496	63	13.342	84	10.674	105	4.004	900	23.484
		32	190	165.18	$336.65	0.03	137.163	63	13.342	84	10.674	105	4.004	900	24.817
		33	190	161.59	$178.38	0.03	126.667	50	11.641	80	11.641	113	11.641	900	28.41
		34	190	163.92	$135.17	0.03	128.995	50	11.641	80	11.641	113	11.641	900	26.082
	OHB2201 OHB0	13	206	84.32	$83.72	0.03	59.074	21	7.574	35	7.574	48	10.098	900	121.68
		16	206	162.83	$117.16	0.03	130.012	41	10.098	54	12.623	64	10.098	900	43.169
		17	206	150.97	$181.55	0.03	118.147	41	10.098	54	12.623	64	10.098	900	55.034
		18	206	155.26	$117.34	0.03	122.439	41	10.098	54	12.623	64	10.098	900	50.742
		19	206	153.74	$190.42	0.03	120.924	41	10.098	57	12.623	64	10.098	900	52.257
		20	206	151.22	$185.54	0.03	118.4	41	10.098	57	12.623	64	10.098	900	54.781
		21	206	154	$183.68	0.03	121.176	41	10.098	57	12.623	64	10.098	900	52.005
		22	206	150.21	$149.78	0.03	117.39	41	10.098	57	12.623	64	10.098	900	55.791
		23	206	158.54	$188.63	0.03	132.032	63	12.623	84	10.098	105	3.787	900	47.46
		24	206	156.77	$147.68	0.03	130.265	63	12.623	84	10.098	105	3.787	900	49.227
		25	206	160.31	$126.37	0.03	133.799	63	12.623	84	10.098	105	3.787	900	45.693
		26	206	159.05	$183.13	0.03	132.537	63	12.623	84	10.098	105	3.787	900	46.955
		27	154	134.97	$184.43	0.03	112.256	63	10.815	84	8.652	105	3.244	900	19.033
		28	154	128.05	$207.18	0.03	105.334	63	10.815	84	8.652	105	3.244	900	25.955
		29	154	132.59	$338.06	0.03	109.876	63	10.815	84	8.652	105	3.244	900	21.413
		30	154	133.45	$346.03	0.03	110.742	63	10.815	84	8.652	105	3.244	900	20.547
		31	154	134.97	$341.90	0.03	112.256	63	10.815	84	8.652	105	3.244	900	19.033
		32	154	133.89	$337.27	0.03	111.174	63	10.815	84	8.652	105	3.244	900	20.115
		33	206	175.2	$178.69	0.03	137.333	50	12.623	80	12.623	113	12.623	900	30.798
		34	206	177.73	$135.40	0.03	139.858	50	12.623	80	12.623	113	12.623	900	28.273

2-Dec-19

Tranche dispatched

Tranche dispatched - setting price

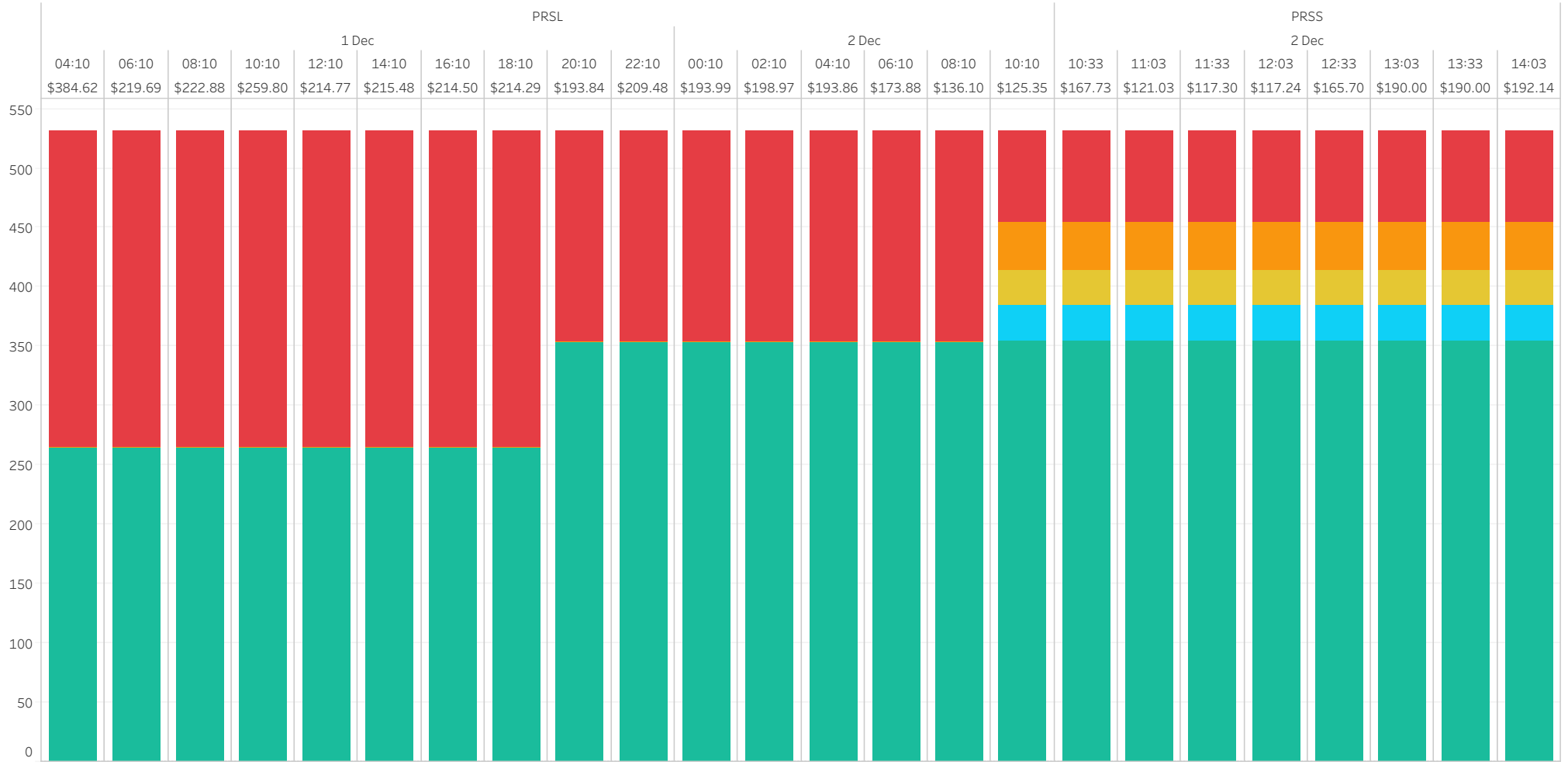
Sum of Measure Values						Tranche	Measure Names									
						Tranche 1		Tranche 2		Tranche 3			Tranche 4		Tranche 5	
Trading date	POC/Unit	Trading period	Total offers MW	SPD generati	Final price $/MWh	$/MWh	MW	$/MWh	MW	$/MWh	MW		$/MWh	MW	$/MWh	MW
	OHC2201 OHC0	13	206	84.32	$83.72	0.03	59.074	21	7.574	35	7.574		48	10.098	900	121.68
		16	206	162.83	$117.18	0.03	130.012	41	10.098	54	12.623		64	10.098	900	43.169
		17	206	150.97	$181.42	0.03	118.147	41	10.098	54	12.623		64	10.098	900	55.034
		18	206	155.26	$117.30	0.03	122.439	41	10.098	54	12.623		64	10.098	900	50.742
		19	206	153.74	$190.34	0.03	120.924	41	10.098	57	12.623		64	10.098	900	52.257
		20	206	151.22	$185.47	0.03	118.4	41	10.098	57	12.623		64	10.098	900	54.781
		21	206	154	$183.61	0.03	121.176	41	10.098	57	12.623		64	10.098	900	52.005
		22	206	150.21	$149.72	0.03	117.39	41	10.098	57	12.623		64	10.098	900	55.791
		23	206	158.54	$188.68	0.03	132.032	63	12.623	84	10.098		105	3.787	900	47.46
		24	206	156.77	$147.71	0.03	130.265	63	12.623	84	10.098		105	3.787	900	49.227
		25	206	160.31	$126.40	0.03	133.799	63	12.623	84	10.098		105	3.787	900	45.693
		26	206	159.05	$184.23	0.03	132.537	63	12.623	84	10.098		105	3.787	900	46.955
		27	154	134.97	$185.23	0.03	112.256	63	10.815	84	8.652		105	3.244	900	19.033
		28	154	128.05	$209.20	0.03	105.334	63	10.815	84	8.652		105	3.244	900	25.955
		29	154	132.59	$342.71	0.03	109.876	63	10.815	84	8.652		105	3.244	900	21.413
		30	154	133.45	$350.21	0.03	110.742	63	10.815	84	8.652		105	3.244	900	20.547
		31	154	134.97	$345.82	0.03	112.256	63	10.815	84	8.652		105	3.244	900	19.033
		32	154	133.89	$337.03	0.03	111.174	63	10.815	84	8.652		105	3.244	900	20.115
		33	206	175.2	$178.74	0.03	137.333	50	12.623	80	12.623		113	12.623	900	30.798
		34	206	177.73	$135.44	0.03	139.858	50	12.623	80	12.623		113	12.623	900	28.273
	WTK0111 WTK0	13	90	55	$83.70	0.01	55			985	30				5200	5
		16	90	55	$117.66	0.01	55			985	30				5200	5
		17	90	55	$181.79	0.01	55			985	30				5200	5
		18	90	55	$117.70	0.01	55			985	30				5200	5
		19	90	55	$190.97	0.01	55			985	30				5200	5
		20	90	55	$186.09	0.01	55			985	30				5200	5
		21	90	55	$184.22	0.01	55			985	30				5200	5
		22	90	55	$150.22	0.01	55			985	30				5200	5
		23	90	55	$189.47	0.01	55			985	30				5200	5
		24	90	55	$148.34	0.01	55			985	30				5200	5
		25	90	55	$126.93	0.01	55			985	30				5200	5
		26	90	55	$197.86	0.01	55			985	30				5200	5
		27	90	55	$195.96	0.01	55			985	30				5200	5
		28	90	55	$235.56	0.01	55			985	30				5200	5
		29	90	55	$401.21	0.01	55			985	30				5200	5
		30	90	55	$404.02	0.01	55			985	30				5200	5
		31	90	55	$395.34	0.01	55			985	30				5200	5
		32	90	55	$337.79	0.01	55			985	30				5200	5
		33	90	55	$179.51	0.01	55			985	30				5200	5
		34	90	55	$136.02	0.01	55			985	30				5200	5
Grand Total						3.6	32519	6202	1570	28662	2130		11696	1290	195500	5387

Predispatch offers

PRS prices and offers for 2 Dec 19 14:00 (TP29)

Tranche 1 Tranche 2 Tranche 3 Tranche 4 Tranche 5

Trading date	Trading period	Schedule	Participant	POC/unit	Colour	View
2 Dec 19	29	PRS	Meridian Energy	BEN2202 BEN0	Tranche	Chart



Predispatch offers

Tranche 1 Tranche 2 Tranche 3 Tranche 4 Tranche 5

PRS prices and offers for 2 Dec 19 14:00 (TP29)

Trading date	Trading period	Schedule	Participant	POC/unit	Colour	View
2 Dec 19	29	PRS	Meridian Energy	BEN2202 BEN0	Tranche	Table

					Tranche 1		Tranche 2		Tranche 3		Tranche 4		Tranche 5	
POC/unit	Price schedule	Run time	Predispatch price $/MWh	Total offered MW	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW
BEN2202 BEN0	PRSL	1 Dec 19 04:10	$384.62	532.000	$0.03	265.000	$100.00	0.000	$350.00	0.000	$450.00	0.000	$975.00	267.000
		1 Dec 19 06:10	$219.69	532.000	$0.03	265.000	$100.00	0.000	$350.00	0.000	$450.00	0.000	$975.00	267.000
		1 Dec 19 08:10	$222.88	532.000	$0.03	265.000	$100.00	0.000	$350.00	0.000	$450.00	0.000	$975.00	267.000
		1 Dec 19 10:10	$259.80	532.000	$0.03	265.000	$100.00	0.000	$350.00	0.000	$450.00	0.000	$975.00	267.000
		1 Dec 19 12:10	$214.77	532.000	$0.03	265.000	$100.00	0.000	$350.00	0.000	$450.00	0.000	$975.00	267.000
		1 Dec 19 14:10	$215.48	532.000	$0.03	265.000	$100.00	0.000	$350.00	0.000	$450.00	0.000	$975.00	267.000
		1 Dec 19 16:10	$214.50	532.000	$0.03	265.000	$100.00	0.000	$350.00	0.000	$450.00	0.000	$975.00	267.000
		1 Dec 19 18:10	$214.29	532.000	$0.03	265.000	$100.00	0.000	$350.00	0.000	$450.00	0.000	$975.00	267.000
		1 Dec 19 20:10	$193.84	532.000	$0.03	354.000	$100.00	0.000	$350.00	0.000	$450.00	0.000	$975.00	178.000
		1 Dec 19 22:10	$209.48	532.000	$0.03	354.000	$100.00	0.000	$350.00	0.000	$450.00	0.000	$975.00	178.000
		2 Dec 19 00:10	$193.99	532.000	$0.03	354.000	$100.00	0.000	$350.00	0.000	$450.00	0.000	$975.00	178.000
		2 Dec 19 02:10	$198.97	532.000	$0.03	354.000	$100.00	0.000	$350.00	0.000	$450.00	0.000	$975.00	178.000
		2 Dec 19 04:10	$193.86	532.000	$0.03	354.000	$100.00	0.000	$350.00	0.000	$450.00	0.000	$975.00	178.000
		2 Dec 19 06:10	$173.88	532.000	$0.03	354.000	$100.00	0.000	$350.00	0.000	$450.00	0.000	$975.00	178.000
		2 Dec 19 08:10	$136.10	532.000	$0.03	354.000	$100.00	0.000	$350.00	0.000	$450.00	0.000	$975.00	178.000
		2 Dec 19 10:10	$125.35	532.000	$0.03	354.000	$121.00	30.000	$190.00	30.000	$375.00	40.000	$975.00	78.000
	PRSS	2 Dec 19 10:33	$167.73	532.000	$0.03	354.000	$121.00	30.000	$190.00	30.000	$375.00	40.000	$975.00	78.000
		2 Dec 19 11:03	$121.03	532.000	$0.03	354.000	$113.00	30.000	$190.00	30.000	$370.00	40.000	$975.00	78.000
		2 Dec 19 11:33	$117.30	532.000	$0.03	354.000	$113.00	30.000	$190.00	30.000	$370.00	40.000	$975.00	78.000
		2 Dec 19 12:03	$117.24	532.000	$0.03	354.000	$113.00	30.000	$190.00	30.000	$370.00	40.000	$975.00	78.000
		2 Dec 19 12:33	$165.70	532.000	$0.03	354.000	$113.00	30.000	$190.00	30.000	$370.00	40.000	$975.00	78.000
		2 Dec 19 13:03	$190.00	532.000	$0.03	354.000	$113.00	30.000	$190.00	30.000	$365.00	40.000	$975.00	78.000
		2 Dec 19 13:33	$190.00	532.000	$0.03	354.000	$113.00	30.000	$190.00	30.000	$365.00	40.000	$975.00	78.000
		2 Dec 19 14:03	$192.14	532.000	$0.03	354.000	$113.00	30.000	$190.00	30.000	$365.00	40.000	$975.00	78.000

8-Dec-19

Tranche dispatched

Tranche dispatched - setting price

Sum of Measure Values						Tranche	Measure Names									
						Tranche 1		Tranche 2		Tranche 3		Tranche 4		Tranche 5		
Trading date	POC/Unit	Trading period	Total offers MV	SPD generat	Final price $/MWh	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW	
8/12/2019	AVI2201 AVI0	32	214	105	$93.13	0.03	105							900	109	
		33	214	105	$93.39	0.03	105							900	109	
		34	214	105	$157.27	0.03	105							900	109	
		35	214	105	$209.45	0.03	105							900	109	
		36	214	105	$90.25	0.03	105							900	109	
		37	214	105	$45.36	0.03	105							900	109	
	BEN2202 BEN0	32	532	240	$93.52	0.03	170	90	70	150	40			975	252	
		33	532	240	$93.82	0.03	170	87	70	150	40			975	252	
		34	532	280	$158.00	0.03	170	87	70	150	40			975	252	
		35	532	280	$210.42	0.03	170	87	70	150	40			975	252	
		36	532	240	$90.64	0.03	170	87	70	150	40			975	252	
		37	532	170	$45.56	0.03	170	87	70	150	40			975	252	
	MAN2201 MAN0	32	738	738	$84.32	0.02	600	23	138							
		33	738	738	$83.81	0.02	600	23	138							
		34	738	738	$141.21	0.02	600	23	138							
		35	738	738	$188.06	0.02	600	23	138							
		36	738	738	$81.64	0.02	600	23	138							
		37	738	738	$41.03	0.02	600	23	138							
	OHA2201 OHA0	32	190	135.08	$92.82	0.03	100.366	30	22.094	41	12.624	93	12.624	900	42.292	
		33	190	146.99	$93.00	0.03	116.462	30	15.78	41	12.624	93	12.624	900	32.51	
		34	190	148.34	$156.63	0.03	107.308	30	15.78	41	12.624	91	12.624	900	41.664	
		35	190	149.28	$208.60	0.03	108.256	30	15.78	41	12.624	91	12.624	900	40.716	
		36	190	150.86	$89.82	0.03	122.458	30	15.78	41	12.624	90	25.25	900	13.888	
		37	190	165.38	$45.14	0.03	136.976	30	15.78	41	12.624	90	12.624	900	11.996	
	OHB2201 OHB0	32	206	159.16	$93.00	0.03	108.817	30	23.953	41	13.688	93	13.688	900	45.854	
		33	206	170.76	$93.16	0.03	126.269	30	17.11	41	13.688	93	13.688	900	35.245	
		34	206	160.83	$156.90	0.03	116.346	30	17.11	41	13.688	91	13.688	900	45.168	
		35	206	161.86	$208.96	0.03	117.372	30	17.11	41	13.688	91	13.688	900	44.142	
		36	206	163.57	$89.98	0.03	132.771	30	17.11	41	13.688	90	27.375	900	15.056	
		37	206	179.31	$45.22	0.03	148.512	30	17.11	41	13.688	90	13.688	900	13.002	
	OHC2201 OHC0	32	206	146.46	$92.97	0.03	108.817	30	23.953	41	13.688	93	13.688	900	45.854	
		33	206	170.76	$93.18	0.03	126.269	30	17.11	41	13.688	93	13.688	900	35.245	
		34	206	160.83	$156.93	0.03	116.346	30	17.11	41	13.688	91	13.688	900	45.168	
		35	206	161.86	$209.00	0.03	117.372	30	17.11	41	13.688	91	13.688	900	44.142	
		36	206	175.13	$90.00	0.03	132.771	30	17.11	41	13.688	90	27.375	900	15.056	
		37	206	179.31	$45.23	0.03	148.512	30	17.11	41	13.688	90	13.688	900	13.002	
	WTK0111 WTK0	32	105	35	$92.99	0.01	35			985	65			5200	5	
		33	105	35	$93.08	0.01	35			985	65			5200	5	
		34	105	35	$156.98	0.01	35			985	65			5200	5	
		35	105	35	$209.07	0.01	35			985	65			5200	5	
		36	105	35	$90.11	0.01	35			985	65			5200	5	
		37	105	35	$45.29	0.01	35			985	65			5200	5	
Grand Total						1.08	7652	1203	1568	7548	870	1644	280	58650	2776	

11-Dec-19

Tranche dispatched

Tranche partly dispatched - not setting price

Sum of Measure Values						Tranche	Measure Names									
						Tranche 1		Tranche 2		Tranche 3		Tranche 4		Tranche 5	
Trading date	POC/Unit	Trading period	Total offers MW	SPD generat	Final price $/MWh	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW
11/12/2019	AVI2201 AVI0	21	214	150	$99.19	0.03	150							900	64
		22	214	150	$127.67	0.03	150							900	64
		23	160	150	$127.54	0.03	150							900	10
		24	160	150	$104.95	0.03	150							900	10
		25	160	150	$92.62	0.03	150							900	10
		26	160	150	$92.08	0.03	150							900	10
		27	160	150	$132.41	0.03	150							900	10
		28	160	150	$132.43	0.03	150							900	10
		29	160	150	$131.99	0.03	150							900	10
		30	160	150	$134.94	0.03	150							900	10
		31	160	150	$135.15	0.03	150							900	10
		32	160	150	$248.12	0.03	150							900	10
		33	214	150	$248.36	0.03	150							900	64
		34	214	150	$243.63	0.03	150							900	64
		35	214	150	$134.54	0.03	150							900	64
		36	214	150	$134.52	0.03	150							900	64
		37	214	150	$89.49	0.03	150							900	64
	BEN2202 BEN0	21	532	493.53	$99.71	0.03	401.579	48	36.842	69	22.105	81	36.842	900	34.632
		22	532	493.79	$128.34	0.03	400.842	48	36.842	69	22.105	81	36.842	900	35.369
		23	532	476.74	$128.21	0.03	380.947	49	36.842	69	22.105	81	36.842	900	55.264
		24	532	477.47	$105.51	0.03	381.684	49	36.842	69	22.105	81	36.842	900	54.527
		25	532	479.68	$93.11	0.03	383.895	49	36.842	69	22.105	81	36.842	900	52.316
		26	532	482.63	$92.57	0.03	379.474	49	36.842	66	29.474	81	36.842	900	49.368
		27	532	517.74	$133.11	0.03	418.526	49	36.842	66	36.842	80	29.474	900	10.316
		28	532	521.68	$133.13	0.03	422.211	49	36.842	66	36.842	80	25.789	900	10.316
		29	532	501.05	$132.68	0.03	434.737	48	29.474	66	36.842	80	20.632	900	10.315
		30	532	507.04	$135.65	0.03	441.368	48	29.474	66	36.842	80	14	900	10.316
		31	532	506.16	$135.87	0.03	451.684	48	29.474	66	36.842	80	3.684	900	10.316
		32	532	503.53	$249.44	0.03	459.053	48	29.474	66	33.158			900	10.315
		33	532	498.79	$249.68	0.03	472.316	48	29.474	66	19.895			900	10.315
		34	532	496.42	$244.92	0.03	478.947	48	29.474	66	13.263			900	10.316
		35	532	494.42	$135.25	0.03	494.421	48	27.263					900	10.316
		36	532	492.47	$135.23	0.03	490	48	29.474	66	2.211			900	10.315
		37	532	496.95	$89.97	0.03	477.474	48	29.474	66	14.737			900	10.315
	MAN2201 MAN0	21	615	615	$95.40	0.02	615								
		22	615	615	$122.81	0.02	615								
		23	615	615	$122.53	0.02	615								
		24	615	615	$100.84	0.02	615								
		25	615	615	$88.98	0.02	615								
		26	615	615	$88.47	0.02	615								
		27	615	615	$127.22	0.02	615								
		28	615	615	$126.81	0.02	615								
		29	615	615	$126.53	0.02	615								
		30	615	615	$129.67	0.02	615								
		31	615	615	$129.44	0.02	615								
		32	615	615	$238.13	0.02	615								
		33	615	615	$238.36	0.02	615								

11-Dec-19

Tranche dispatched

Tranche partly dispatched - not setting price

Sum of Measure Values						Tranche	Measure Names									
						Tranche 1		Tranche 2		Tranche 3		Tranche 4		Tranche 5	
Trading date	POC/Unit	Trading period	Total offers MW	SPD generat	Final price $/MWh	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW
	MAN2201 MAN0	34	615	615	$233.82	0.02	615								
		35	615	615	$129.08	0.02	615								
		36	615	615	$129.06	0.02	615								
		37	615	615	$85.56	0.02	615								
	OHA2201 OHA0	21	190	164.47	$99.56	0.03	143.421	48	13.158	69	7.895	81	13.158	900	12.368
		22	190	164.21	$128.16	0.03	143.158	48	13.158	69	7.895	81	13.158	900	12.631
		23	190	170.26	$127.82	0.03	136.053	49	13.158	69	7.895	81	13.158	900	19.736
		24	190	170.53	$105.18	0.03	136.316	49	13.158	69	7.895	81	13.158	900	19.473
		25	190	171.32	$92.82	0.03	137.105	49	13.158	69	7.895	81	13.158	900	18.684
		26	190	172.37	$92.28	0.03	135.526	49	13.158	66	10.526	81	13.158	900	17.632
		27	190	186.32	$132.70	0.03	149.474	49	13.158	66	13.158	80	10.526	900	3.684
		28	190	186.32	$132.72	0.03	150.789	49	13.158	66	13.158	80	9.211	900	3.684
		29	190	176.95	$132.49	0.03	155.263	48	10.526	66	13.158	80	7.368	900	3.685
		30	190	170.96	$135.46	0.03	157.632	48	10.526	66	13.158	80	5	900	3.684
		31	190	171.84	$135.45	0.03	161.316	48	10.526	66	13.158	80	1.316	900	3.684
		32	190	174.47	$248.67	0.03	163.947	48	10.526	66	11.842			900	3.685
		33	190	179.21	$248.91	0.03	168.684	48	10.526	66	7.105			900	3.685
		34	190	181.58	$244.17	0.03	171.053	48	10.526	66	4.737			900	3.684
		35	190	183.58	$134.83	0.03	176.579	48	9.737					900	3.684
		36	190	185.53	$134.81	0.03	175	48	10.526	66	0.789			900	3.685
		37	190	181.05	$89.71	0.03	170.526	48	10.526	66	5.263			900	3.685
	OHB2201 OHB0	21	206	206	$99.66	0.03	206								
		22	206	206	$128.27	0.03	206								
		23	206	206	$127.95	0.03	206								
		24	206	206	$105.30	0.03	206								
		25	206	206	$92.92	0.03	206								
		26	206	206	$92.38	0.03	206								
		27	206	206	$132.84	0.03	206								
		28	206	206	$132.86	0.03	206								
		29	206	206	$132.61	0.03	206								
		30	206	206	$135.58	0.03	206								
		31	206	206	$135.60	0.03	206								
		32	206	206	$248.93	0.03	206								
		33	206	206	$249.17	0.03	206								
		34	206	206	$244.43	0.03	206								
		35	206	206	$134.97	0.03	206								
		36	206	206	$134.95	0.03	206								
		37	206	206	$89.80	0.03	206								
	OHC2201 OHC0	21	206	206	$99.48	0.03	206								
		22	206	206	$128.04	0.03	206								
		23	206	206	$127.70	0.03	206								
		24	206	206	$105.09	0.03	206								
		25	206	206	$92.74	0.03	206								
		26	206	206	$92.20	0.03	206								
		27	206	206	$132.58	0.03	206								
		28	206	206	$132.60	0.03	206								
		29	206	206	$132.37	0.03	206								

11-Dec-19

Tranche dispatched

Tranche partly dispatched - not setting price

Sum of Measure Values						Tranche	Measure Names								
						Tranche 1		Tranche 2		Tranche 3		Tranche 4		Tranche 5	
Trading date	POC/Unit	Trading period	Total offers M\	SPD generat	Final price $/MWh	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW
	OHC2201 OHC0	30	206	206	$135.34	0.03	206								
		31	206	206	$135.33	0.03	206								
		32	206	206	$248.45	0.03	206								
		33	206	206	$248.69	0.03	206								
		34	206	206	$243.95	0.03	206								
		35	206	206	$134.71	0.03	206								
		36	206	206	$134.69	0.03	206								
		37	206	206	$89.63	0.03	206								
	WTK0111 WTK0	21	105	40	$99.05	0.03	40			985	60			5200	5
		22	105	40	$127.50	0.03	40			985	60			5200	5
		23	105	40	$127.36	0.03	40			985	60			5200	5
		24	105	40	$104.81	0.03	40			985	60			5200	5
		25	105	40	$92.49	0.03	40			985	60			5200	5
		26	105	40	$91.95	0.03	40			985	60			5200	5
		27	105	40	$132.22	0.03	40			985	60			5200	5
		28	105	40	$132.24	0.03	40			985	60			5200	5
		29	105	40	$131.80	0.03	40			985	60			5200	5
		30	105	40	$134.76	0.03	40			985	60			5200	5
		31	105	40	$134.96	0.03	40			985	60			5200	5
		32	105	40	$247.76	0.03	40			985	60			5200	5
		33	105	40	$248.00	0.03	40			985	60			5200	5
		34	105	40	$243.28	0.03	40			985	60			5200	5
		35	105	40	$134.23	0.03	40			985	60			5200	5
		36	105	40	$134.21	0.03	40			985	60			5200	5
		37	105	40	$89.28	0.03	40			985	60			5200	5
Grand Total						3.4	30690	1644	757	18887	1573	1772	427	134300	1169

12-Dec-19

Tranche dispatched

Tranche partly dispatched - not setting price

Sum of Measure Values							Tranche	Measure Names									
							Tranche 1		Tranche 2		Tranche 3		Tranche 4		Tranche 5		
Trading date	POC/Unit	Trading period	Total offers MW	SPD generati	Final price $/MWh	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW		
12/12/2019	AVI2201 AVI0	14	214	30	$50.97	0.01	30	160	50					900	134		
		15	214	150	$65.70	0.03	150							900	64		
		16	214	150	$87.34	0.03	150							900	64		
		17	214	150	$138.71	0.03	150							900	64		
		18	214	150	$170.76	0.03	150							900	64		
		19	214	150	$164.09	0.03	150							905	64		
		20	214	150	$165.42	0.03	150							905	64		
		21	214	150	$169.78	0.03	150							905	64		
		22	214	150	$169.06	0.03	150							905	64		
		23	214	150	$198.32	0.03	150							905	64		
		24	214	150	$196.72	0.03	150							905	64		
		25	214	150	$207.65	0.03	150							905	64		
		26	214	150	$51.74	0.03	150							905	64		
		27	214	150	$210.95	0.03	150							905	64		
		28	214	150	$210.63	0.03	150							900	64		
		29	214	150	$210.41	0.03	150							900	64		
		30	214	150	$181.40	0.03	150							900	64		
		31	214	150	$171.77	0.03	150							900	64		
		32	214	150	$178.66	0.03	150							900	64		
		33	214	150	$217.21	0.03	150							900	64		
		34	214	150	$171.04	0.03	150							905	64		
		35	214	150	$173.66	0.03	150							905	64		
		36	214	150	$170.76	0.03	150							905	64		
		37	214	150	$87.34	0.03	150							905	64		
		38	214	150	$70.43	0.03	150							905	64		
	BEN2202 BEN0	14	532	440.74	$51.00	0.01	399.368	37	36.842	51	36.842	90	36.842	900	22.106		
		15	532	492.78	$66.04	0.03	447.263	45	36.842	65	36.842			900	11.053		
		16	532	507.68	$87.81	0.03	507.684	45	24.316								
		17	532	500	$139.44	0.03	514.316	45	17.684								
		18	532	500	$171.67	0.03	520.947	45	11.053								
		19	532	492.78	$164.96	0.03	514.316	45	7.368					900	10.316		
		20	532	492.78	$166.29	0.03	504	45	17.684					900	10.316		
		21	532	521.68	$170.68	0.03	490.737	45	30.947					900	10.316		
		22	532	521.69	$169.95	0.03	492.211	45	29.474					900	10.315		
		23	532	521.68	$199.37	0.03	488.526	45	33.158					900	10.316		
		24	532	521.69	$197.74	0.03	492.211	45	29.474					900	10.315		
		25	532	521.69	$208.78	0.03	492.211	45	29.474					900	10.315		
		26	532	521.69	$52.01	0.03	492.211	45	29.474					900	10.315		
		27	532	521.69	$212.06	0.03	492.211	45	29.474					900	10.315		
		28	532	521.69	$211.73	0.03	492.211	45	29.474					900	10.315		
		29	532	521.69	$211.52	0.03	492.211	45	29.474					900	10.315		
		30	532	521.69	$182.35	0.03	492.211	45	29.474					900	10.315		
		31	532	521.69	$172.68	0.03	492.211	45	29.474					900	10.315		
		32	532	521.69	$179.60	0.03	492.211	45	29.474					900	10.315		
		33	532	521.69	$218.36	0.03	492.211	45	29.474					900	10.315		
		34	532	521.69	$171.94	0.03	492.211	45	29.474					900	10.315		

12-Dec-19

Tranche dispatched

Tranche partly dispatched - not setting price

Sum of Measure Values						Tranche	Measure Names									
						Tranche 1		Tranche 2		Tranche 3		Tranche 4		Tranche 5	
Trading date	POC/Unit	Trading period	Total offers MW	SPD generati	Final price $/MWh	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW
	BEN2202 BEN0	35	532	521.69	$174.58	0.03	492.211	45	29.474					900	10.315
		36	532	521.69	$171.65	0.03	492.211	45	29.474					900	10.315
		37	532	521.69	$87.82	0.03	492.211	45	29.474					900	10.315
		38	532	521.69	$70.84	0.03	492.211	45	29.474					900	10.315
	MAN2201 MAN0	14	615	615	$48.21	0.02	615								
		15	615	615	$63.04	0.02	615								
		16	615	615	$83.84	0.02	615								
		17	615	615	$133.14	0.02	615								
		18	615	615	$163.99	0.02	615								
		19	615	615	$157.58	0.02	615								
		20	615	615	$158.54	0.02	615								
		21	615	615	$163.05	0.02	615								
		22	615	615	$162.34	0.02	615								
		23	615	615	$190.07	0.02	615								
		24	615	615	$188.75	0.02	615								
		25	615	615	$198.60	0.02	615								
		26	615	615	$49.64	0.02	615								
		27	615	615	$202.50	0.02	615								
		28	615	615	$202.19	0.02	615								
		29	615	615	$201.99	0.02	615								
		30	615	615	$174.13	0.02	615								
		31	615	615	$164.95	0.02	615								
		32	615	615	$171.57	0.02	615								
		33	615	615	$208.59	0.02	615								
		34	615	615	$163.88	0.02	615								
		35	615	615	$166.77	0.02	615								
		36	615	615	$163.91	0.02	615								
		37	615	615	$83.26	0.02	615								
		38	615	615	$66.90	0.02	615								
	OHA2201 OHA0	14	190	155.79	$50.79	0.01	142.632	37	13.158	51	13.158	90	13.158	900	7.894
		15	190	175.22	$65.84	0.03	159.737	45	13.158	65	13.158			900	3.947
		16	190	182.32	$87.54	0.03	181.316	45	8.684						
		17	190	190	$139.01	0.03	183.684	45	6.316						
		18	190	190	$171.14	0.03	186.053	45	3.947						
		19	190	183.68	$164.45	0.03	183.684	45	2.632					900	3.684
		20	190	180	$165.78	0.03	180	45	6.316					900	3.684
		21	190	186.32	$170.15	0.03	175.263	45	11.053					900	3.684
		22	190	186.32	$169.41	0.03	175.789	45	10.526					900	3.685
		23	190	186.32	$198.75	0.03	174.474	45	11.842					900	3.684
		24	190	186.32	$197.10	0.03	175.789	45	10.526					900	3.685
		25	190	186.32	$207.06	0.03	175.789	45	10.526					900	3.685
		26	190	186.32	$51.84	0.03	175.789	45	10.526					900	3.685
		27	190	186.32	$211.39	0.03	175.789	45	10.526					900	3.685
		28	190	186.32	$211.05	0.03	175.789	45	10.526					900	3.685
		29	190	186.32	$210.85	0.03	175.789	45	10.526					900	3.685
		30	190	186.32	$181.77	0.03	175.789	45	10.526					900	3.685

12-Dec-19

Tranche dispatched

Tranche partly dispatched - not setting price

Sum of Measure Values						Tranche	Measure Names									
						Tranche 1		Tranche 2		Tranche 3		Tranche 4		Tranche 5	
Trading date	POC/Unit	Trading period	Total offers MW	SPD generati	Final price $/MWh	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW
	OHA2201 OHA0	31	190	186.32	$172.14	0.03	175.789	45	10.526					900	3.685
		32	190	186.32	$179.05	0.03	175.789	45	10.526					900	3.685
		33	190	186.32	$217.69	0.03	175.789	45	10.526					900	3.685
		34	190	186.32	$171.41	0.03	175.789	45	10.526					900	3.685
		35	190	186.32	$174.05	0.03	175.789	45	10.526					900	3.685
		36	190	186.32	$171.11	0.03	175.789	45	10.526					900	3.685
		37	190	186.32	$87.59	0.03	175.789	45	10.526					900	3.685
		38	190	186.32	$70.30	0.03	175.789	45	10.526					900	3.685
	OHB2201 OHB0	14	206	206	$50.85	0.01	206								
		15	206	206	$65.91	0.03	206								
		16	206	195	$87.63	0.03	195							900	11
		17	206	195	$139.16	0.03	195							900	11
		18	206	195	$171.32	0.03	195							900	11
		19	206	206	$164.63	0.03	206								
		20	206	206	$165.95	0.03	206								
		21	206	206	$170.33	0.03	206								
		22	206	206	$169.59	0.03	206								
		23	206	206	$198.96	0.03	206								
		24	206	206	$197.31	0.03	206								
		25	206	206	$207.29	0.03	206								
		26	206	206	$51.89	0.03	206								
		27	206	206	$211.61	0.03	206								
		28	206	206	$211.27	0.03	206								
		29	206	206	$211.07	0.03	206								
		30	206	206	$181.97	0.03	206								
		31	206	206	$172.33	0.03	206								
		32	206	206	$179.24	0.03	206								
		33	206	206	$217.92	0.03	206								
		34	206	206	$171.59	0.03	206								
		35	206	206	$174.23	0.03	206								
		36	206	206	$171.29	0.03	206								
		37	206	206	$87.68	0.03	206								
		38	206	206	$70.38	0.03	206								
	OHC2201 OHC0	14	206	206	$50.74	0.01	206								
		15	206	206	$65.78	0.03	206								
		16	206	195	$87.46	0.03	195							900	11
		17	206	195	$138.89	0.03	195							900	11
		18	206	195	$170.99	0.03	195							900	11
		19	206	206	$164.31	0.03	206								
		20	206	206	$165.63	0.03	206								
		21	206	206	$170.00	0.03	206								
		22	206	206	$169.26	0.03	206								
		23	206	206	$198.57	0.03	206								
		24	206	206	$196.93	0.03	206								
		25	206	206	$206.88	0.03	206								
		26	206	206	$51.79	0.03	206								

12-Dec-19

Tranche dispatched

Tranche partly dispatched - not setting price

Sum of Measure Values						Tranche	Measure Names									
						Tranche 1		Tranche 2		Tranche 3		Tranche 4		Tranche 5		
Trading date	POC/Unit	Trading period	Total offers MW	SPD generati	Final price $/MWh	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW	
	OHC2201 OHC0	27	206	206	$211.20	0.03	206									
		28	206	206	$210.86	0.03	206									
		29	206	206	$210.66	0.03	206									
		30	206	206	$181.61	0.03	206									
		31	206	206	$171.99	0.03	206									
		32	206	206	$178.89	0.03	206									
		33	206	206	$217.49	0.03	206									
		34	206	206	$171.26	0.03	206									
		35	206	206	$173.89	0.03	206									
		36	206	206	$170.96	0.03	206									
		37	206	206	$87.51	0.03	206									
		38	206	206	$70.24	0.03	206									
	WTK0111 WTK0	14	105	40	$50.86	0.01	40			985	60			5200	5	
		15	105	40	$65.55	0.01	40			985	60			5200	5	
		16	105	40	$87.22	0.01	40			985	60			5200	5	
		17	105	40	$138.51	0.01	40			985	60			5200	5	
		18	105	40	$170.52	0.01	40			985	60			5200	5	
		19	105	31.54	$163.86	0.01	40			985	60			5200	5	
		20	105	35.22	$165.18	0.01	40			985	60			5200	5	
		21	105	40	$169.54	0.01	40			985	60			5200	5	
		22	105	40	$168.82	0.01	40			985	60			5200	5	
		23	105	40	$198.03	0.01	40			985	60			5200	5	
		24	105	40	$196.27	0.01	40			985	60			5200	5	
		25	105	40	$207.15	0.01	40			985	60			5200	5	
		26	105	40	$51.62	0.01	40			985	60			5200	5	
		27	105	40	$210.46	0.01	40			985	60			5200	5	
		28	105	40	$210.15	0.01	40			985	60			5200	5	
		29	105	40	$209.93	0.01	40			985	60			5200	5	
		30	105	40	$180.98	0.01	40			985	60			5200	5	
		31	105	40	$171.53	0.01	40			985	60			5200	5	
		32	105	40	$178.40	0.01	40			985	60			5200	5	
		33	105	40	$216.90	0.01	40			985	60			5200	5	
		34	105	40	$170.79	0.01	40			985	60			5200	5	
		35	105	40	$173.42	0.01	40			985	60			5200	5	
		36	105	40	$170.36	0.01	40			985	60			5200	5	
		37	105	40	$87.12	0.01	40			985	60			5200	5	
		38	105	40	$70.25	0.01	40			985	60			5200	5	
Grand Total						4.4	46881	2394	983	24857	1600	180	50	197570	2186	

16-Dec-19

Tranche dispatched

Tranche partly dispatched - not setting price

Sum of Measure Values						Tranche	Measure Names									
						Tranche 1		Tranche 2		Tranche 3		Tranche 4		Tranche 5	
Trading date	POC/Unit	Trading period	Total offers MW	SPD generation MW	Final price $/MWh	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW
16/12/2019	AVI2201 AVI0	10	214	80	$56.40	0.01	80							905	134
		11	214	80	$78.45	0.01	80							905	134
		12	214	80	$158.80	0.01	80							905	134
		13	214	80	$79.77	0.01	80							905	134
		14	214	80	$63.08	0.01	80							905	134
		15	214	150	$67.71	0.03	150							905	64
		16	214	150	$92.33	0.03	150							905	64
		17	214	150	$238.68	0.03	150							905	64
		18	214	150	$239.49	0.03	150							905	64
		19	214	150	$238.24	0.03	150							905	64
		20	214	150	$234.31	0.03	150							905	64
		21	214	150	$214.45	0.03	150							905	64
		22	214	150	$229.97	0.03	150							905	64
		23	214	150	$193.42	0.03	150							905	64
		24	214	150	$180.40	0.03	150							905	64
		25	214	150	$186.13	0.03	150							905	64
		26	214	150	$171.92	0.03	150							905	64
		27	214	150	$166.24	0.03	150							905	64
		28	214	150	$171.52	0.03	150							905	64
		29	214	150	$185.91	0.03	150							905	64
		30	214	150	$186.87	0.03	150							905	64
		31	214	150	$238.41	0.03	150							905	64
		32	214	150	$253.22	0.03	150							905	64
		33	214	150	$254.06	0.03	150							905	64
		34	214	150	$258.64	0.03	150							905	64
		35	214	150	$260.19	0.03	150							905	64
		36	214	150	$260.07	0.03	150							905	64
		37	214	150	$177.48	0.03	150							905	64
		38	214	150	$175.05	0.03	150							905	64
		39	214	150	$72.78	0.03	150							905	64
		40	214	150	$70.52	0.03	150							905	64
	BEN2202 BEN0	10	532	250	$56.60	0.01	250							975	282
		11	532	250	$78.72	0.01	250							975	282
		12	532	350	$159.37	0.01	350							975	182
		13	532	450	$80.03	0.01	450							975	82
		14	443	443	$63.26	0.01	443								
		15	443	443	$68.04	0.03	443								
		16	443	443	$92.78	0.03	443								
		17	443	443	$239.88	0.03	443								
		18	443	443	$240.70	0.03	443								
		19	443	443	$239.43	0.03	443								
		20	443	443	$235.44	0.03	443								
		21	443	443	$215.49	0.03	443								
		22	443	443	$231.09	0.03	443								
		23	443	443	$194.35	0.03	443								
		24	443	443	$181.27	0.03	443								
		25	443	443	$187.03	0.03	443								
		26	443	443	$172.75	0.03	443								
		27	443	443	$167.44	0.03	443								

16-Dec-19

Tranche dispatched

Tranche partly dispatched - not setting price

Sum of Measure Values						Tranche	Measure Names									
						Tranche 1		Tranche 2		Tranche 3		Tranche 4		Tranche 5		
Trading date	POC/Unit	Trading period	Total offers MW	SPD generation MW	Final price $/MWh	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW	
		28	443	443	$172.68	0.03	443									
		29	443	443	$187.15	0.03	443									
		30	443	443	$187.78	0.03	443									
		31	443	443	$239.56	0.03	443									
		32	443	443	$254.44	0.03	443									
		33	443	443	$255.29	0.03	443									
		34	443	443	$259.89	0.03	443									
		35	443	443	$261.92	0.03	443									
		36	443	443	$261.85	0.03	443									
		37	443	443	$178.69	0.03	443									
		38	443	443	$176.24	0.03	443									
		39	443	443	$73.27	0.03	443									
		40	443	443	$71.00	0.03	443									
	MAN2201 MAN0	10	738	738	$52.22	0.02	738									
		11	738	738	$72.54	0.02	738									
		12	738	738	$149.11	0.02	738									
		13	738	738	$73.84	0.02	738									
		14	738	738	$58.15	0.02	738									
		15	738	738	$62.39	0.02	738									
		16	738	738	$85.12	0.02	738									
		17	738	738	$220.15	0.02	738									
		18	738	738	$220.91	0.02	738									
		19	738	738	$219.72	0.02	738									
		20	738	738	$215.59	0.02	738									
		21	738	738	$197.32	0.02	738									
		22	738	738	$211.60	0.02	738									
		23	738	738	$177.96	0.02	738									
		24	738	738	$165.97	0.02	738									
		25	738	738	$171.21	0.02	738									
		26	738	738	$158.22	0.02	738									
		27	738	738	$153.25	0.02	738									
		28	738	738	$157.42	0.02	738									
		29	738	738	$170.60	0.02	738									
		30	738	738	$171.98	0.02	738									
		31	738	738	$219.41	0.02	738									
		32	738	738	$233.04	0.02	738									
		33	738	738	$233.82	0.02	738									
		34	738	738	$238.04	0.02	738									
		35	738	738	$238.75	0.02	738									
		36	738	738	$238.69	0.02	738									
		37	738	738	$162.88	0.02	738									
		38	738	738	$160.65	0.02	738									
		39	738	738	$66.70	0.02	738									
		40	738	738	$64.54	0.02	738									
	OHA2201 OHA0	10	190	80.48	$56.58	0.01	26.828	13	9.468	18	12.624	45	31.562	900	109.518	
		11	190	89.32	$78.55	0.01	35.664	13	9.468	18	12.624	45	31.562	900	100.682	
		12	190	81.11	$159.45	0.01	27.458	13	9.468	18	12.624	45	31.562	900	108.888	
		13	190	76.06	$80.06	0.01	22.408	13	9.468	18	12.624	45	31.562	900	113.938	
		14	190	135.08	$62.99	0.01	81.428	13	9.468	18	12.624	45	31.562	900	54.918	

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Tranche dispatched

Tranche partly dispatched - not setting price

Sum of Measure Values						Tranche	Measure Names									
						Tranche 1		Tranche 2		Tranche 3		Tranche 4		Tranche 5	
Trading date	POC/Unit	Trading period	Total offers MW	SPD generation MW	Final price $/MWh	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW
	OHA2201 OHA0	15	190	154.02	$67.82	0.03	131.926	13	9.468	40	12.624			900	35.982
		16	190	166.59	$92.53	0.03	145.814	13	9.468	40	12.624			900	22.094
		17	190	166.59	$239.29	0.03	145.814	13	9.468	40	12.624			900	22.094
		18	190	166.59	$240.11	0.03	145.814	13	9.468	40	12.624			900	22.094
		19	190	166.59	$238.84	0.03	145.814	13	9.468	40	12.624			900	22.094
		20	190	166.59	$234.80	0.03	145.814	13	9.468	39	12.624			900	22.094
		21	190	163.1	$214.90	0.03	145.814	13	9.468	39	12.624			900	22.094
		22	190	160.25	$230.45	0.03	145.814	13	9.468	39	12.624			900	22.094
		23	190	159	$193.81	0.03	145.814	15	9.468	39	12.624			900	22.094
		24	190	157.58	$180.76	0.03	145.814	15	9.468	39	12.624			900	22.094
		25	190	155.28	$186.43	0.03	145.814	15	9.468	39	12.624			900	22.094
		26	190	157.02	$172.26	0.03	145.814	15	9.468	39	12.624			900	22.094
		27	190	160.49	$166.98	0.03	145.814	15	9.468	39	12.624			900	22.094
		28	190	156.13	$172.13	0.03	145.814	15	9.468	39	12.624			900	22.094
		29	190	159.28	$186.53	0.03	145.814	15	9.468	39	12.624			900	22.094
		30	190	162.45	$187.25	0.03	145.814	15	9.468	39	12.624			900	22.094
		31	190	164.26	$238.89	0.03	145.814	15	9.468	39	12.624			900	22.094
		32	190	166.29	$253.73	0.03	145.814	15	9.468	39	12.624			900	22.094
		33	190	165.56	$254.58	0.03	145.814	15	9.468	39	12.624			900	22.094
		34	190	166.59	$259.18	0.03	145.814	15	9.468	39	12.624			900	22.094
		35	190	165.03	$261.06	0.03	145.814	15	9.468	39	12.624			900	22.094
		36	190	166.59	$261.03	0.03	145.814	15	9.468	39	12.624			900	22.094
		37	190	164.12	$178.12	0.03	145.814	15	9.468	39	12.624			900	22.094
		38	190	157.91	$175.68	0.03	145.814	15	9.468	39	12.624			900	22.094
		39	190	155.28	$72.89	0.03	145.814	15	9.468	39	12.624			900	22.094
		40	190	155.28	$70.74	0.03	145.814	15	9.468	39	12.624			900	22.094
	OHB2201 OHB0	10	206	87.26	$56.58	0.01	29.086	13	10.266	18	13.688	45	34.219	900	118.741
		11	206	96.84	$78.57	0.01	38.668	13	10.266	18	13.688	45	34.219	900	109.159
		12	206	87.94	$159.50	0.01	29.771	13	10.266	18	13.688	45	34.219	900	118.056
		13	206	82.47	$80.08	0.01	24.296	13	10.266	18	13.688	45	34.219	900	123.531
		14	206	146.46	$63.10	0.01	88.286	13	10.266	18	13.688	45	34.219	900	59.541
		15	206	166.99	$67.89	0.03	143.037	13	10.266	40	13.688			900	39.009
		16	206	182.05	$92.63	0.03	158.093	13	10.266	40	13.688			900	23.953
		17	206	182.05	$239.53	0.03	158.093	13	10.266	40	13.688			900	23.953
		18	206	182.05	$240.35	0.03	158.093	13	10.266	40	13.688			900	23.953
		19	206	182.05	$239.08	0.03	158.093	13	10.266	40	13.688			900	23.953
		20	206	182.05	$235.04	0.03	158.093	13	10.266	39	13.688			900	23.953
		21	206	182.05	$215.12	0.03	158.093	13	10.266	39	13.688			900	23.953
		22	206	182.05	$230.69	0.03	158.093	13	10.266	39	13.688			900	23.953
		23	206	182.05	$194.01	0.03	158.093	15	10.266	39	13.688			900	23.953
		24	206	182.05	$180.94	0.03	158.093	15	10.266	39	13.688			900	23.953
		25	206	181.56	$186.63	0.03	158.093	15	10.266	39	13.688			900	23.953
		26	206	182.05	$172.44	0.03	158.093	15	10.266	39	13.688			900	23.953
		27	206	182.05	$167.15	0.03	158.093	15	10.266	39	13.688			900	23.953
		28	206	182.05	$172.31	0.03	158.093	15	10.266	39	13.688			900	23.953
		29	206	182.05	$186.73	0.03	158.093	15	10.266	39	13.688			900	23.953
		30	206	182.05	$187.45	0.03	158.093	15	10.266	39	13.688			900	23.953
		31	206	182.05	$239.14	0.03	158.093	15	10.266	39	13.688			900	23.953
		32	206	182.05	$253.99	0.03	158.093	15	10.266	39	13.688			900	23.953

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Tranche dispatched

Tranche partly dispatched - not setting price

Sum of Measure Values						Tranche	Measure Names									
						Tranche 1		Tranche 2		Tranche 3		Tranche 4		Tranche 5	
Trading date	POC/Unit	Trading period	Total offers MW	SPD generation MW	Final price $/MWh	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW
		33	206	182.05	$254.84	0.03	158.093	15	10.266	39	13.688			900	23.953
		34	206	182.05	$259.45	0.03	158.093	15	10.266	39	13.688			900	23.953
		35	206	182.05	$261.34	0.03	158.093	15	10.266	39	13.688			900	23.953
		36	206	182.05	$261.31	0.03	158.093	15	10.266	39	13.688			900	23.953
		37	206	182.05	$178.31	0.03	158.093	15	10.266	39	13.688			900	23.953
		38	206	182.05	$175.87	0.03	158.093	15	10.266	39	13.688			900	23.953
		39	206	182.05	$72.98	0.03	158.093	15	10.266	39	13.688			900	23.953
		40	206	181.96	$70.82	0.03	158.093	15	10.266	39	13.688			900	23.953
	OHC2201 OHC0	10	206	87.26	$56.56	0.01	29.086	13	10.266	18	13.688	45	34.219	900	118.741
		11	206	96.84	$78.55	0.01	38.668	13	10.266	18	13.688	45	34.219	900	109.159
		12	206	87.94	$159.35	0.01	29.771	13	10.266	18	13.688	45	34.219	900	118.056
		13	206	82.47	$80.01	0.01	24.296	13	10.266	18	13.688	45	34.219	900	123.531
		14	206	146.46	$63.10	0.01	88.286	13	10.266	18	13.688	45	34.219	900	59.541
		15	206	166.99	$67.92	0.03	143.037	13	10.266	40	13.688			900	39.009
		16	206	168.36	$92.51	0.03	158.093	13	10.266	40	13.688			900	23.953
		17	206	168.36	$239.22	0.03	158.093	13	10.266	40	13.688			900	23.953
		18	206	168.36	$240.03	0.03	158.093	13	10.266	40	13.688			900	23.953
		19	206	168.36	$238.77	0.03	158.093	13	10.266	40	13.688			900	23.953
		20	206	168.36	$234.74	0.03	158.093	13	10.266	39	13.688			900	23.953
		21	206	171.85	$214.90	0.03	158.093	13	10.266	39	13.688			900	23.953
		22	206	174.7	$230.45	0.03	158.093	13	10.266	39	13.688			900	23.953
		23	206	175.96	$193.81	0.03	158.093	15	10.266	39	13.688			900	23.953
		24	206	177.37	$180.76	0.03	158.093	15	10.266	39	13.688			900	23.953
		25	206	180.16	$186.63	0.03	158.093	15	10.266	39	13.688			900	23.953
		26	206	177.93	$172.26	0.03	158.093	15	10.266	39	13.688			900	23.953
		27	206	174.47	$166.98	0.03	158.093	15	10.266	39	13.688			900	23.953
		28	206	178.82	$172.13	0.03	158.093	15	10.266	39	13.688			900	23.953
		29	206	175.67	$186.53	0.03	158.093	15	10.266	39	13.688			900	23.953
		30	206	172.51	$187.25	0.03	158.093	15	10.266	39	13.688			900	23.953
		31	206	170.69	$238.89	0.03	158.093	15	10.266	39	13.688			900	23.953
		32	206	168.67	$253.73	0.03	158.093	15	10.266	39	13.688			900	23.953
		33	206	169.39	$254.58	0.03	158.093	15	10.266	39	13.688			900	23.953
		34	206	168.36	$259.12	0.03	158.093	15	10.266	39	13.688			900	23.953
		35	206	169.93	$261.06	0.03	158.093	15	10.266	39	13.688			900	23.953
		36	206	168.36	$260.99	0.03	158.093	15	10.266	39	13.688			900	23.953
		37	206	170.83	$178.12	0.03	158.093	15	10.266	39	13.688			900	23.953
		38	206	177.04	$175.68	0.03	158.093	15	10.266	39	13.688			900	23.953
		39	206	179.67	$72.96	0.03	158.093	15	10.266	39	13.688			900	23.953
		40	206	179.75	$70.82	0.03	158.093	15	10.266	39	13.688			900	23.953
	WTK0111 WTK0	10	105	35	$56.27	0.01	35			985	65			5200	5
		11	105	35	$78.28	0.01	35			985	65			5200	5
		12	105	35	$158.44	0.01	35			985	65			5200	5
		13	105	35	$79.59	0.01	35			985	65			5200	5
		14	105	35	$62.97	0.01	35			985	65			5200	5
		15	105	35	$67.57	0.01	35			985	65			5200	5
		16	105	35	$92.15	0.01	35			985	65			5200	5
		17	105	35	$238.16	0.01	35			985	65			5200	5
		18	105	35	$238.98	0.01	35			985	65			5200	5
		19	105	35	$237.73	0.01	35			985	65			5200	5

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Tranche dispatched

Tranche partly dispatched - not setting price

Sum of Measure Values						Tranche	Measure Names									
						Tranche 1		Tranche 2		Tranche 3		Tranche 4		Tranche 5	
Trading date	POC/Unit	Trading period	Total offers MW	SPD generation MW	Final price $/MWh	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW	$/MWh	MW
		20	**105**	35	$233.84	0.01	35			985	65			5200	5
		21	**105**	35	$214.02	0.01	35			985	65			5200	5
		22	**105**	35	$229.51	0.01	35			985	65			5200	5
		23	**105**	35	$193.03	0.01	35			985	65			5200	5
		24	**105**	35	$180.04	0.01	35			985	65			5200	5
		25	**105**	35	$185.76	0.01	35			985	65			5200	5
		26	**105**	35	$171.58	0.01	35			985	65			5200	5
		27	**105**	35	$165.90	0.01	35			985	65			5200	5
		28	**105**	35	$171.22	0.01	35			985	65			5200	5
		29	**105**	35	$185.61	0.01	35			985	65			5200	5
		30	**105**	35	$186.50	0.01	35			985	65			5200	5
		31	**105**	35	$237.93	0.01	35			985	65			5200	5
		32	**105**	35	$252.71	0.01	35			985	65			5200	5
		33	**105**	35	$253.55	0.01	35			985	65			5200	5
		34	**105**	35	$258.12	0.01	35			985	65			5200	5
		35	**105**	35	$259.76	0.01	35			985	65			5200	5
		36	**105**	35	$259.62	0.01	35			985	65			5200	5
		37	**105**	35	$177.17	0.01	35			985	65			5200	5
		38	**105**	35	$174.74	0.01	35			985	65			5200	5
		39	**105**	35	$72.65	0.01	35			985	65			5200	5
		40	**105**	35	$70.40	0.01	35			985	65			5200	5
Grand Total						**5.08**	**54106**	**1317**	**930**	**33862**	**3255**	**675**	**500**	**276855**	**6727**