10 October 2017

Submissions
Electricity Authority
By email: submissions@ea.govt.nz

Real-time pricing proposal

Meridian welcomes this opportunity to comment on the Authority's proposal to determine spot prices in real-time using the System Operator's dispatch process.

Meridian supports the proposal in principle and agrees that real-time pricing will provide greater certainty and enable parties to make more efficient, real-time decisions about their consumption and generation of electricity. In principle, real-time pricing is preferable to the current process, whereby final prices are published at least two days after real-time.

The move to real-time pricing will be a significant change to the operation of the spot market. While we agree with the proposal in principle, it will be challenging to implement in practice. The Authority and the System Operator will need to implement the proposed changes in a timely fashion and in a way that gives market participants confidence that the platform will operate as anticipated on day one.

Meridian would like to draw the Authority's and System Operator's attention to some specific elements of the proposal that could be refined or which require careful implementation.

Demand forecast accuracy

For real time pricing in the dispatch schedule, the System Operator is proposing to take the actual system demand and then bias it according to the expected load at the end of the five minute period. The paper proposed that use of Ion Meters is an "option" – Meridian considers that this should be a prerequisite. Additionally, the methodology utilised for the

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five minute demand bias should be transparent and tested to measure its accuracy on an ongoing basis.

For the forecast schedules, Meridian submits that the demand forecast should meet a high standard of accuracy (i.e. a higher standard than current forecasting) and that the methodology for determining the forecast should also be transparent and tested to measure its accuracy on an ongoing basis. Again we consider this to be a prerequisite for the introduction of real-time pricing. As real-time pricing will give more certainty to demand response and new technologies, the forecast schedules should also give improved certainty to those participants that are subject to the one hour gate closure. Ultimately this will improve all market participants' decision-making. Meridian expects that demand forecast improvements would be consistent across all the schedule horizons, not just in the dispatch schedule. Failure to have consistency across schedules would result in final prices diverging from forecast prices, undermining the expected benefits to the consumer.

High spring washer pricing situations (HSWPS)

Meridian agrees that, ideally, demand response would automatically correct or relax any potential HSWPS. However, in the absence of this correction, the proposed scarcity pricing bands would set prices in a HSWPS. In order to understand the significant of this change, Meridian would like to be able to compare the potential pricing outcomes in HSWPS under both the existing relaxation factor and what might happen under real-time pricing using the scarcity pricing bands. We recommend that the Authority undertake analysis over a period of several years to determine what the pricing outcomes would have been under the proposal during HSWPS. Such analysis should be undertaken in advance and inform the Authority's final decision. We have some concern that the new process could drive higher prices to the detriment of consumers.

We understand that any such comparison might be artificial if the Authority's expectation is that demand response will provide the relaxation of a HSWPS. Meridian does not, however, share the Authority's confidence on this point. Further, even if the Authority's expectation is borne out, the comparison would be useful as a worst case scenario.

Market system outages

Market system outages occur with surprising regularity – there is generally an outage of either the market system or the Wholesale Market Information System every month,

sometimes multiple outages per month. Meridian estimates that these outages last for approximately 1.5 hours on average. We would appreciate it if the Authority (as the contracting party) or NZX would publish market outage statistics before real-time pricing is implemented.

Meridian recommends that the Authority and System Operator take steps to minimise the occurrence and duration of outages. This could be a secondary backup that mirrors the live market system and takes over the market functions during an outage of the primary system, or some other solution. Given the criticality of the market system to system operations and the level of money exchanged through its operation, it is surprising that planned maintenance outages are still tolerable given the technology currently available. We appreciate that the risk of market system outages cannot be completely negated but would like to see more done to reduce the occurrence ahead of the introduction of real-time pricing.

Material pricing errors

Meridian agrees that it would be inefficient for the pricing manager to be retained solely to resolve pricing error claims.

The System Operator holds the relevant expertise to efficiently investigate pricing error claims. However, as noted by the Authority, there is a clear conflict of interest for the System Operator. The conflict arises when the System Operator is required to investigate a claimed pricing error and the inputs generated by the System Operator[1] are material to the acceptance or rejection of the claim. In those situations the System Operator would be the judge of its own actions and this is clearly an inappropriate and invidious position for the System Operator to be in.

We note that the drafting of the proposed Code amendments at clause 13.173C, appears to acknowledge the need for pricing error decisions to ultimately be made by the Authority:

> **13.173C Authority to decide whether pricing error has occurred**
> (1) No later than 2 **business days** after receiving a report from the **system operator** under clause 13.173(1)(f), the **Authority** must either—
> (a) decide whether a material **pricing error** has occurred; or

[1] For example demand forecasts, constraint design, or any discretionary actions undertaken by the System Operator in the running of the power system.

(b) if the **system operator** has advised the **Authority** to reject a claim, reject the claim.

However, the current drafting is ambiguous and could imply that if the System Operator advises the Authority to reject an error claim then the Authority has no choice but to follow the advice and reject the claim. Meridian would like to see the drafting tightened so that the Authority is clearly able to accept or reject, at its sole discretion, the advice provided by the System Operator in the investigation report. We also recommend that the Authority has the ability to assess the situation using its own internal expertise, or alternatively an external expert.

Dispatch-lite

The Authority's attempts to facilitate demand-side participation though dispatch-lite are well intentioned. However, we question whether demand for these products exists in the market. Certainly the response from demand-side participants at the Authority's workshops suggested that uptake would be minimal or non-existent.

Meridian's view is that dispatch-lite should not form part of the initial package of Code amendments introducing real-time pricing. Dispatch-lite could always be added at a later date if there is increased demand for such a product. For now, it seems likely to be more efficient to focus on the critical design elements of real-time pricing, rather than spread resources more thinly by also developing dispatch-lite.

While we accept the Authority's position that there are minimal costs associated with the initial implementation of dispatch-lite, there is the potential for increased operational expenses to manage downstream compliance issues. For example, to monitor compliance with dispatch notices and decide who is eligible to participate in dispatch-lite.

The implementation process

In general, Meridian supports any efforts to increase confidence and certainty in real-time pricing so that participants can adapt their systems and be ready for the go-live date. We encourage the Authority and System Operator to work closely with the industry during the implementation period to keep participants informed of progress and anticipated timing. Market participants have also built a number of processes and systems that will need to be adjusted when real-time pricing is implemented.

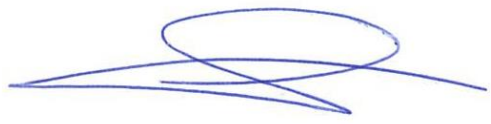
Meridian appreciates the Authority's stated intention is to publish the new real-time prices on a pilot basis before they go fully live. Meridian encourages the Authority and System Operator to develop and run as many of the real-time pricing system components as possible in parallel to the current market system. This will enable participants to see in advance how the system might work and prepare us to operate under the new market system. A beta system running in parallel need not operate in real time; hindcasting could be used and components of the system modelled if needed. Anything that can be achieved in this regard will increase participants' certainty and help to smooth the transition to real-time pricing.

Finally we note that the Authority's workshop presentation for the proposal indicated that a Board decision would be made in December 2017 but that any agreed Code amendments would then be "parked" until mid-2020, when the Authority is contemplating a further "optional Code amendment consultation" before publication of final amendments in the Gazette. In Meridian's view this process is not appropriate. A gap of two and a half years between a decision and publication in the Gazette means that further consultation should be mandatory. We urge the Authority to commit to such consultation now. Alternatively the necessary Code amendments should be published in the Gazette soon after the Board decision in December 2017, with a deferred date for coming into force. This alternative could also require a second round of consultation on Code changes that arise in the course of implementation work of the following two years.

Appendix A provides Meridian's comments on the specific consultation questions.

Please contact me if you have any questions regarding this submission.

Yours sincerely



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A. Responses to consultation questions

	Question	Response
1	Do you agree with the broad principle of using dispatch prices to determine final prices? If not, please explain your reasoning.	Yes.
2.	Do you agree with using the time-weighted average of dispatch prices to calculate prices for a trading period? If not, please explain your reasoning.	Yes.
3.	Do you agree with disestablishing the pricing manager and allocating residual functions to other parties? If not, please explain your reasoning.	Yes.
4.	Do you agree with the general approach of using default scarcity values to handle generation shortages? If not, please explain your reasoning.	Yes.
5.	Do you agree with using default scarcity bids before generation or dispatchable demand offered at a higher price in the dispatch schedule? If not, please explain your reasoning.	Yes.
6.	Do you agree the system operator does not need to make changes to the existing process it uses to notify distributors of emergency load shedding?	Yes.
7.	What is your view on the preferred treatment of disconnected nodes? Please explain your reasoning.	Meridian supports the Authority's proposal to set a proxy price for disconnected nodes where the proxy price would be set based on the price at an appropriate adjacent node for the relevant trading period multiplied by the historic average of the affected node's location factor. The location factor adjustment should be based on a period of similar grid configuration.
8.	Do you agree that it is not desirable to apply a cumulative price limit under RTP? If not, please explain your reasoning.	Yes.
9.	Do you agree the current principle of partially relaxing reserve procurement before invoking emergency load	Yes.

	shedding should continue under RTP? If not, please explain your reasoning.	
10.	Do you agree with the proposed removal of the high spring washer pricing provisions in the Code? If not, please explain your reasoning.	Possibly. Meridian would first like to see the anticipated pricing outcomes and compare them with pricing outcomes under the current relaxation rules. We submit that the Authority should carry out analysis as recommended in out covering letter before making a decision. Currently we are not confident that demand response will necessarily relax high spring washer pricing situations and would not want to see overall price increases for consumers in these situations as a result of real-time pricing.
11.	Do you agree with the proposed changes for demand inputs? If not, please explain your reasoning.	Yes.
12.	Do you agree that ION meter data should be the primary data source for demand inputs? If not, please explain your reasoning.	Yes – and it should be a prerequisite rather than an option for implementing real-time pricing.
13.	What is your view on the best approach to incorporate dispatchable demand within an RTP framework? Please explain your reasoning.	We agree with the Authority's suggestion that dispatchable demand move from the non-response schedule (NRS) to the dispatch schedule. This move is dependent on Transpower's EDF Phase 3 project being implemented before real-time pricing. The move to the dispatch schedule is preferable to keeping dispatchable demand on the NRS, which would be more complex and less efficient.
14.	Do you agree with the proposed features for a dispatch-lite product? If not, please explain your reasoning.	It seems likely there will be minimal uptake of dispatch-lite. For now, it could be more efficient to focus on the critical design elements of real-time pricing, rather than spread resources more thinly. Dispatch-lite could always be added at a later date.
15.	Do you agree with the proposal to allow revisions to offers and bids within trading periods in some circumstances? If not, please explain your reasoning.	Yes, if there is a bona fide physical reason or a grid emergency has been declared.
16.	Do you agree with using the last bid or offer received in a trading period when calculating constrained on and off payments? If not, please explain your	Yes.

	reasoning.	
17.	Do you agree we should retain a process for addressing material pricing errors? If not, please explain your reasoning.	Yes.
18.	Which approach do you prefer for managing pricing errors: a manual claim or automated checking? Please explain your reasoning (this could include suggestions for an automated filter).	An automated checking process could be a first step to filter error claims and resolve anything obvious. A manual process will still likely be needed to resolve more complex pricing error claims. The Authority could review the use of manual claims after a couple of years and then determine if the need for manual claim still exists.
19.	If we retain a manual claim process for pricing errors under RTP, who should perform that role: – the system operator? – the Authority? – the pricing manager, as their only function? – some other party? Please explain your reasoning, including regarding any possible conflict of interest.	The System Operator holds the relevant expertise to investigate pricing errors. However, Meridian considers there to be a clear conflict of interest in situations where the System Operator investigates any pricing error claim where inputs generated by the System Operator (for example demand forecasts, constraint design, or discretionary actions) are material to the claim. In those situations the System Operator could be required to judge its own errors resulting in it being placed in an invidious position. Meridian supports the Authority retaining a role in the pricing error process. Ideally, the System Operator would investigate in the first instance and provide a report to the Authority. The Authority would then make the final decision (agreeing with or rejecting the recommendation of the System Operator). Meridian would like to see the drafting tightened so that the Authority is clearly able to accept or reject the advice provided by the System Operator in the investigation report. The drafting currently proposed does not achieve this outcome and seems to imply that the Authority is only a rubber stamp for any System Operator recommendation to reject a pricing error claim. Meridian does not support this drafting. Please also see the cover letter of this submission.

20.	Do you agree with the proposed treatment of spot prices during market system outages? If not, please explain your reasoning.	Yes. However, Meridian encourages the Authority and System operator to take all reasonable steps to minimise the likelihood of a market system outage, including exploring technology solutions for backup market systems. Please also see the cover letter of this submission.
21.	Do you agree with the proposed changes to forecast schedules to align them with dispatch schedules? If not, please explain your reasoning.	Yes.
22.	Do you agree with the proposed use of dispatch schedules to apportion loss and constraint excess for financial transmission rights each month (if that is required)? If not, please explain your reasoning.	Yes.
23.	Do you agree with the proposed approach for transitioning to RTP? If not please explain your reasoning.	Yes. In particular we support the publication of real-time prices on a pilot basis before they go fully live. Meridian encourages the Authority and System Operator to develop and run as many system components as possible in parallel to the current market system. For example, new demand forecasts could also be published on a pilot basis in advance of the go live date. We expect the Authority and System Operator to work closely with the industry during the development of an implementation plan (we note the further consultation signalled at paragraph 3.123 of the Authority's paper) and subsequently during the implementation period to keep participants informed of progress and anticipated timing. The more certainty participants have, the more efficiently we will be able to prepare our own systems so that we can engage effectively with real-time pricing on day one. The work involved to transition our own internal systems and processes is not insignificant. Please see the response to question 25 below for an early estimate of costs.
24.	Do you agree with the objective of the proposed Code amendment? If not, please explain your reasoning.	Yes.

25.	Do you agree with the cost benefit assessment? In particular: – what (if any) other sources of benefit should be included in the assessment? – what is your view on key assumptions, such as the level of improved demand response enabled by RTP? – what (if any) other sources of costs should be included in the assessment? Please explain your reasoning.	Quantified benefits are derived from more efficient demand response, based on the belief that this will improve if participants have access to reliable price signals. This is a significant assumption and we agree with the Authority's statement that, "there is considerable uncertainty about the amount of demand-response that RTP will unlock." The cost benefit assessment states that implementation costs for participants would be $0. We disagree with this assessment. Changing Meridian's systems and processes to accommodate real-time pricing will be significant. Our early estimates are that a three month project could be required, involving one-off costs of approximately $390,000.
26.	Do you agree with our assessment of alternative RTP designs? If not, why not?	Yes.