



CS Energy response to Bidding in Good Faith: AEMC Draft Determination

11th June 2015

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AEMC reference: ERC0166

Draft Determination: Bidding in Good Faith

Executive summary

We thank the Australian Energy Market Commission (AEMC) for consulting on the Draft Determination of the Rule change proposal 'Bidding in Good Faith' (Draft Rule) and provide this submission in response.

Context

The AEMC has determined that late rebidding results in inefficient prices, which do not reflect supply and demand. In doing so, it has resolved to propose the Draft Rule to attempt to restrict late rebidding (in a number of ways) in order to satisfy the National Electricity Objective (NEO).

Our Position

We are of the opinion that:

- the ability to rebid close to dispatch is efficient;
- misleading behaviour should be prohibited by the National Electricity Rules (Rules);
- evidence highlights that, as the auction draws to a close, material changes in circumstances occur and participants should rebid close to dispatch;
- evidence does not highlight rebidding close to dispatch as being delayed and misleading;
- an unintended consequence of the Draft Rule may be to restrict efficient rebidding; and
- the Draft Rule will not satisfy the NEO and should not be made.

Identification of the issue

The issue highlighted in the Draft Determination is that participants can intentionally delay rebids until close to dispatch to deliberately mislead other participants, preventing them from participating in the auction. The AEMC has concluded that this behaviour results in inefficient prices and poor outcomes for the consumer.

The evidence we have prepared in this Submission does not support the AEMC's conclusion, namely:

- rebidding close to dispatch appears neither delayed or misleading;
- participants do not appear to be prevented from participating in the auction; and
- the participants that the AEMC highlights as being the most affected by 'late rebidding' (being gas fired peaking generators and demand side participants) do change their offers or volumes at short notice. This is confirmed by the Australian Energy Regulator (AER) reports.

Satisfaction of the National Electricity Objective

The rule making test contained within the National Electricity Law provides that the AEMC may only make a change to the Rules if it is satisfied that the Draft Rule will, or is likely to, contribute to the achievement of the NEO.

In the Draft Determination, the AEMC considers that the relevant aspects of the NEO in the context of the proposed rule change are the efficient investment in, and operation of, electricity services with respect to the security and reliability of the national electricity system and the price of supply of electricity.

We are of the view that the Draft Rule does not satisfy the NEO upon the basis that:

1. The AEMC's conclusion that the effect of rebidding close to dispatch by market participants results in an inability of the market to arrive at an efficient outcome because other generators and demand side participants do not have sufficient time to respond, is not supported by evidence.

Our view is that information improves as the NEM auction draws to a close, usually causing a material change in conditions and that necessitates rebidding by market participants in order for the auction to reach an efficient equilibrium. This view has been formed on the basis of analysis of forecast and actual data.

2. Demand side participants and retailers with gas fired peaking generators are sophisticated producer market participants who have made a strategic choice to invest capital in the electricity market, as opposed to the consumer in the sense of the NEO.

Our view is that the consumer will not be served if the rule is changed to attempt to distort the competitive dynamic to the advantage of producer participants that have chosen to speculate capital in non-firm hedging arrangements e.g. gas fired generation or demand side technologies. A transfer of wealth between producers resulting from this distortion will not benefit the long term interests of consumers.

Furthermore, we believe it is incorrect to assign recent price volatility in the NEM as inefficient costs to the consumer as:

- consumers do not speculate on the market; and
- periods of price volatility have been preceded by reasonable prices and availability of electricity derivatives which are used to set consumer prices.

Unintended consequences of the Draft Rule

It is our view that the Draft Rule has the potential to lead to inappropriate bidding behaviour and inefficient market outcomes as a result of:

- Ambiguous obligations around the timing of a rebid;
- The inability of a market participant to have full knowledge of the ability of other market participants to respond to a rebid; and

- Reporting requirements that will be unilaterally imposed by the AER through guidelines, where the AER is also the body responsible for monitoring the market and taking enforcement action.

We consider the Draft Rule may have unintended consequences including encouraging participants to rebid earlier, on more subjective information, rather than later, on less subjective information. Furthermore the Draft Rule may stop participants rebidding when changes in circumstances occur close to dispatch. For these reasons the efficiency of the auction may be diminished and wholesale prices may be inefficient. Limiting the effectiveness of the auction is not in the interests of consumers.

On balance, given the evidence does not show there is misleading behaviour (Section 1 of this submission) and the potential for the Draft Rule to restrict efficient rebidding (Section 2); we consider the Draft Rule should not be made, or at least the following elements of the Draft Rule should not be made: 3.8.22(2a); 3.8.22(ca); 3.8.22(e) (1a-1b); 3.8.22A(b1); 3.8.22A(c3), 3.8.22A(d), 3.8.22A(e); definitions in Chapter 10; and 3.1.4(a)(2).

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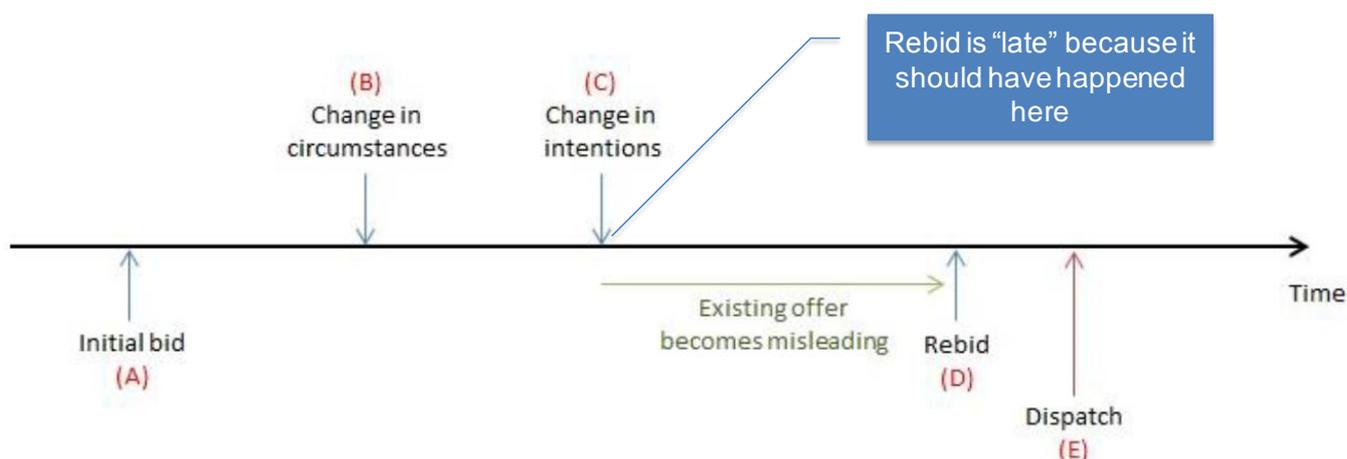
Section 1: Assessment against the National Electricity Objective

Is rebidding close to dispatch likely to be misleading?

The AEMC has determined that late rebidding results in inefficient prices, which do not reflect supply and demand. In doing so, it has proposed a Draft Rule to attempt to restrict late rebidding (in a number of ways) in order to satisfy the National Electricity Objective (NEO).

The Draft Rule aims to prevent the perceived misleading behaviour of participants who form an intention to change their offer, but delay in doing so, until close to dispatch. The delay is why the AEMC consider the rebid “late” and hence why the AEMC wishes to prohibit this behaviour.

This is shown in the following schematic taken from the AEMC’s Draft Determination, which explains how the AEMC considers that an existing offer becomes misleading because of a deliberate delay in making a rebid.



Importantly the AEMC has stated that it does not want to otherwise prohibit rebids made close to dispatch, as they have concluded this would be inefficient. This is because prices (for efficient consumption or an investment in electricity) would not reflect changes in material circumstances that occur close to dispatch. We agree prohibiting all rebids made close to dispatch would be inefficient.

The AEMC’s assessment discusses the potential for there to be two forms of response to rebidding. One may be a price response (a change in offer) and one may be a physical response (an ability or not to satisfy an existing offer).

The AEMC itself describes:

“it is the inability of certain participants to physically respond in time that drives most of the impacts of late rebidding¹”.

¹ AEMC, Draft Determination

Is there evidence that rebidding close to dispatch is misleading?

The Draft Rule aims to prevent what is characterised as the misleading behaviour of participants that form an intention to change their offer price, but delay in doing so, until close to dispatch.

In response to the AEMC’s assessment as presented in the Draft Rule, we have conducted analysis in an attempt to understand whether in fact:

- rebidding close to dispatch is motivated the intention to mislead other participants or whether it is motivated by changes in circumstance and changes in subjective expectations, close to dispatch; and
- a rebid made on the basis of the inability of participants to physically respond, (as indicated by interconnector flow, price, generators’ data, or other information in Predispatch) would be late, as the inability of others to respond would not be known. As such the rebid is unlikely to be part of a strategy to mislead others.

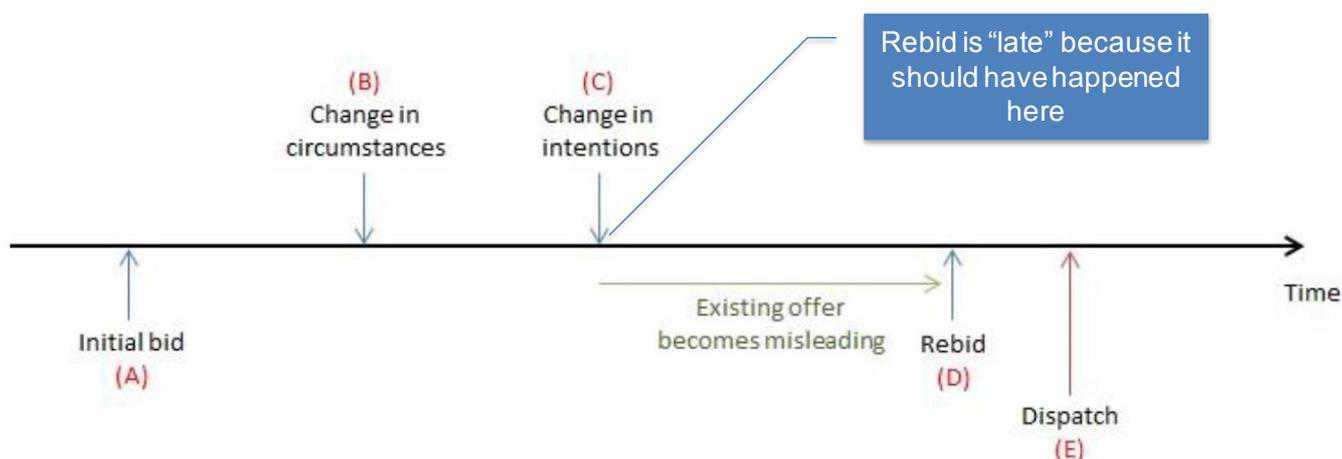
The results of that analysis are set out below.

1. It may not be the time reported in rebid reasons.

We have analysed the prevalence of these ‘delayed’ rebids. Under the current Rule, participants have to provide to AEMO the time of the event or occurrence on which the rebid is based in their rebid reason. This time is not the time the rebid was made, but the time of the event or occurrence.

Should participants deliberately delay in making a rebid, there will likely be a discrepancy between the time they submit the rebid and the time cited as relevant to the event or occurrence.

To use the schematic of the AEMC, we are investigating the difference in timing of (B) “change in circumstances” which should be reported in the rebid reason and (D), which is recorded in the market systems. This should **overstate** the delay in rebidding as is not the difference between (C), which is the change of intentions and (D) the time the rebid was submitted.



We have (using various samples of data as extracted from the market systems) investigated the time lag between the submit time of rebids and the time of the event or occurrence cited in the rebid reason.

For the months, January to March 2014 and December 2014 to March 2015 (inclusive) for rebids made between 06:00 and 20:00 the average 'delay' was 3 minutes for Queensland participants and 4 minutes for Victorian participants. As can be expected there was a positive correlation between average daily price and rebids made on those days, but there is no correlation as to an increase in delay to price.

In addition the standard deviation of delay in rebids was 14 minutes for Queensland and 24 minutes for Victoria.

This data, shown in Appendix 1: Analysis of timing of rebids provides a general indication that participants rebid when the events and occurrences take place. There is no obvious evidence that supports the AEMC's first principles assessment that participants deliberately delay in making rebids to mislead others. Interestingly, it also appears there is no obvious evidence that there is a delay between a change in circumstances and a change of intention.

As a check for materiality we also assessed whether there is evidence of delay in rebidding during periods of high prices. The AER publishes reports on price events over \$5,000/MWh. Over the summer 2014-15 the AER published four reports for the Queensland region.

The following section is taken from the AER's \$5,000/MWh report² and highlights "late rebidding" which, unlike the AEMC Draft Determination, defines as rebidding within a trading interval.

² Electricity spot prices above \$5000/MWh, Queensland, 15 January 2015, (published March 2015)

3.1.1 Rebidding

Appendix A contains all significant rebids that contributed to the high prices. Figure 3 graphically summarises significant rebids made (in most cases) within four hours of dispatch and which were effective during the high price periods. The green areas represent capacity rebid from low prices to high prices for each trading interval. The hatched areas represent capacity rebid during the trading interval (i.e. late rebidding). The blue areas represent (generally low-price) capacity withdrawn for each trading interval.

Figure 3: Rebidding to high prices and capacity withdrawn, by trading interval

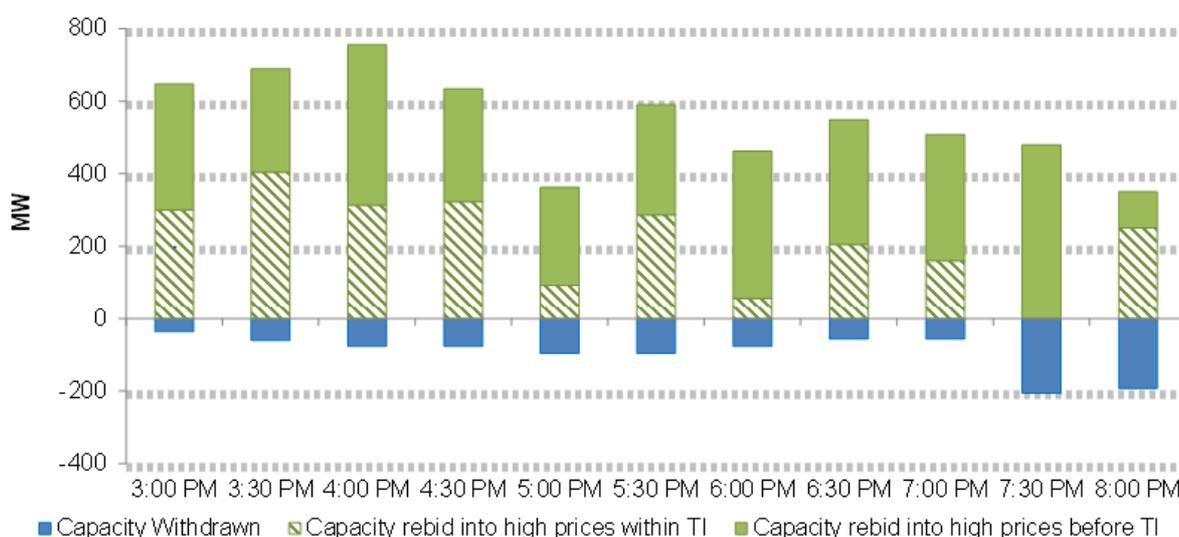


Figure 3 shows that, with the exception of the 7.30 pm trading interval, rebidding within trading intervals contributed to the high prices. CS Energy and Origin Energy were responsible for the majority of the late rebidding, with CS Energy rebidding up to 300 MW and Origin Energy rebidding up to 154 MW within the trading interval.

The table in Appendix 2: Rebids highlighted by the AER in \$5,000/MWh report is taken from the same AER report. It highlights the significant rebids for the 4:30pm trading interval. We note that the time of the events and occurrences reported to AEMO are extremely close to the time of submission. As with the analysis prepared by ROAM Consulting to date this is not proof of participants deliberately delaying rebids to mislead others, it is proof that participants do rebid close to dispatch.

From our perspective there is no prima facie evidence of delaying behaviour. We have looked at every \$5,000/MWh report of the AER over the summer 2014-15 and found it to be the case that the rebidding is not reported after a delay as presented by the AEMC.

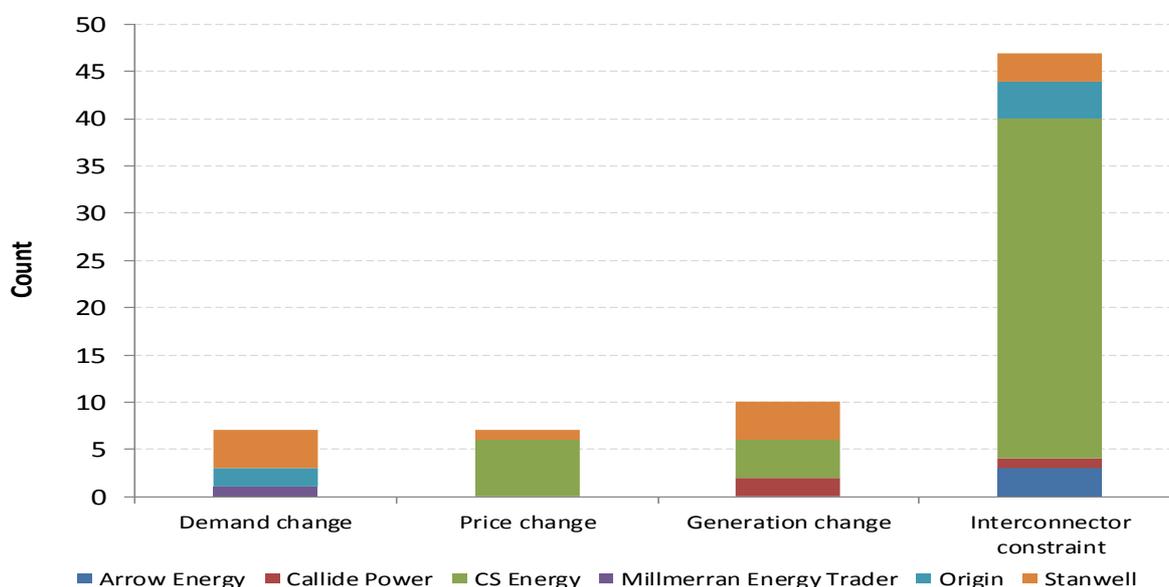
2. It may not be the circumstances reported in rebid reasons.

If, as the evidence suggests, the time given in the rebid reason is not the reason for the AEMC to suggest that rebidding close to dispatch is misleading, then it must be the event or occurrence that is stated by the participant that is being called into question. This thinking is shown by the following from

the AER ‘Electricity Report 23 February to 1 March 2014’ as referenced in its response to the AEMC consultation paper of this Rule Change proposal.

Rebid reasons

Participants are required by the rules to submit a brief verifiable and specific reason whenever a rebid is submitted. Participants are obliged to honour their original offers and rebids if the material conditions and circumstances upon which the offer or rebid were based remain unchanged. We examined all relevant rebids and associated reasons to ensure they were consistent with the rules. That review is ongoing. Most of the rebid reasons during the period fell into four main categories, as shown in Spotlight Figure 1.



Spotlight Figure 1: Rebid reasons within a trading interval

Spotlight Figure 1 shows that most rebid reasons were related to constraints, or forecast constraints on the Queensland to New South Wales interconnector (QNI). **There appears, however, to be little correlation between when the conditions related to the interconnector materially changed, or were forecast to change, and when rebids were submitted. Our analysis showed that on some occasions the interconnector was forecast to constrain some hours prior to dispatch, on others the network constraint appeared as close as in the preceding interval³.**

Given the line of thinking above, if the time in the rebid reason is current, the question is whether the event is a valid reason for rebidding that can be used to infer good faith in the preceding offer. This is the very test of the existing Good Faith rule, in that absent a material change in circumstances, the trader must honour their existing offer.

³ Emphasis added

We have previously stated to the AEMC⁴ that it appears those in favour of the Rule infer a lack of good faith by comparing changed circumstances and rejecting those that they consider have occurred earlier than the time notified in the rebid reason. We questioned whether this proved anything. We explained at length, that the difficulty with the Rules is that changes in circumstance do not really prove intention, they are just incidental. Thus using **one circumstance to rule out another**, which is what the AER is doing in the earlier example, rather than just the absence of material changes of circumstance, is even more difficult.

For example, a participant may quote the interconnector binding as the event or occurrence that made them rebid and included the time that that event or occurrence became a material change in circumstances. Predispatch may have had the interconnector binding some time earlier than the time notified in the rebid yet the participant did not make the rebid at that earlier time. This may be due to the subjective expectation of the participant, meaning that it was not necessary to rebid on the information at the earlier time. The participant may have discounted the information in Predispatch as unreliable, expected a change in demand or a supply and/or a demand side response. Importantly the uncertainty requires a subjective expectation to be made by the relevant participant. This expectation is tested and then if the circumstances change materially such that the expectation is no longer correct, the participant can either change the offer or honour the original offer. What is certain is that the outcome is uncertain. This has been recognised by the AEMC. Despite the interconnector showing as binding in Predispatch, if the interconnector was actually binding close to dispatch this could very well change subjective expectations and it is efficient for a rebid to be made.

The AEMC's analysis of late rebidding and its materiality is based on the:

- ROAM Consulting report, which is a quantitative analysis of whether participants rebid within the trading interval or close to dispatch;
- Oakley Greenwood report, which is a qualitative analysis on whether large users can engage in demand side participation; and
- Stakeholder submissions to the Consultation Paper and Options Paper.

We summarise the AEMC's conclusions as follows:

- Rebidding close to dispatch and late in the trading interval is a recent phenomenon in Queensland, and less so in South Australia;
- Most of the impacts of rebidding close to dispatch or late in the trading interval will occur through consequential impacts on the price of electricity derivatives;
- Rebidding close to dispatch or late in the trading interval may inhibit demand side participation; and

⁴ CS Energy response to Consultation Paper: Bidding in Good Faith, May 2014

- Price impacts from rebidding close to dispatch and late in the trading interval cannot be considered an efficient price signal.

Accordingly, it appears to us that the AEMC has not, in preparing the Draft Determination, analysed whether rebidding close to dispatch is actually caused by a misleading delay as opposed to being in response to a genuine and material change in circumstances.

We are of the view that information improves such that subjective expectations are likely to change, as time reduces to dispatch. This necessitates rebidding by participants for the auction to reach an efficient equilibrium. The evidence relied upon to support this view is set out below.

The following table is taken from the Annual market Performance Report of the Reliability Panel for 2013-14. It shows AEMO's forecasts improve as time reduces.

Table 4.2 Accuracy of ST PASA forecasts 2013-14

ST PASA demand forecast absolute percentage deviation	Queensland	New South Wales	Victoria	South Australia	Tasmania
6 days ahead	2.6%	2.5%	4.5%	3.9%	7.0%
4 days ahead	2.4%	2.2%	3.9%	3.3%	5.8%
2 days ahead	2.1%	2.0%	3.7%	2.9%	5.2%
12 hours	1.9%	1.7%	3.4%	2.6%	4.7%

The Reliability Panel also considers material differences between Predispatch and actual trading interval prices.

The Panel states:

Source: AEMO

'The Panel considers that pre-dispatch has been working satisfactorily as an indicator of reliability and security. Its utility to the market however, will always be affected by the accuracy of demand forecasts. The Panel notes that load forecasting is a continuing challenge. The Panel expects that pre-dispatch should be able to achieve higher accuracy forecasts given the relatively small time difference between periods covered by the pre-dispatch outlook and current dispatch interval.'

The following data is taken from the reports for 2012-13 and 2013-14. The Panel attributes the majority of variations between Predispatch and dispatch to demand forecasts.

Region	2013-14		2012-13	
Demand	905	60%	1590	51%
Availability	253	17%	836	27%
Combination (including rebidding)	357	24%	665	21%
Network	2	0%	57	2%
Total	1232	7%	2474	14%

To further test the theory that rebidding close to dispatch occurs due to participants responding to changes in material circumstances (rather than because of a misleading delay), we have investigated whether this is true by completing an analysis of Predispatch data on the same days that the AER has investigated through its \$5,000/MWh reports for summer 2014-15 as well as some other days during summer 2014-15. The analysis is presented in Appendix 3: Motivations to rebid - analysis of Predispatch.

The analysis investigates the claim that information in the NEM auction improves, such that subjective expectations are likely to change, as time reduces to dispatch. The exercise was to assess, on key days, how the Predispatch data changed as time reduced prior to the NEM auction closing. Accompanying the data is some discussion over the whether the improving or changing data was motivation to rebid.

It is clear from the case of *Australian Energy Regulator v Stanwell Corporation Limited* [2011] FCA 991 that a material change in circumstances can be very broad and can include a change in a trader's expectations as to future conditions. Accordingly, it is possible to make a rebid if conditions have changed such that the trader's expectations for the relevant interval will not be realised. On the basis of the data we have analysed, and on the basis of the ability to rebid due to change in expectations, it is not evident that rebidding close to dispatch on these days was misleading or that there was any particular inability for any participant to respond. Interestingly the participants the AEMC highlights as being the most affected by 'late rebidding' (gas-fired peaking generators and demand side participants) are highlighted by the AER to have changed their offers or volumes at short notice.

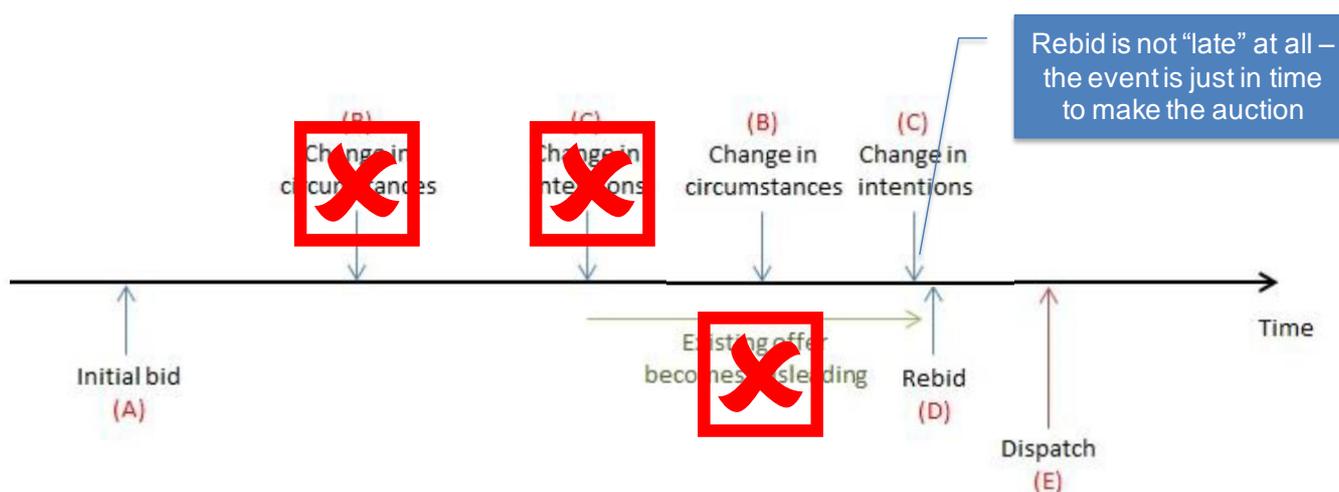
We have used the examples in the appendix to highlight that information, both quality and quantity, may improve as time reduces to the auction closing. Importantly it is the inputs into the calculation that firm as time reduces, including demand, generator offers, generator technical characteristics, demand side participation and interconnector capability. There is also the publication of the hour ahead, 5 minute Predispatch schedule that improves the quantity as well as quality of information available to the market. This information serves to constantly challenge the expectation of the trader who must constantly make the decision whether the conditions and circumstances on which the original offer was based have materially changed, and accordingly, whether or not to change their offer.

By highlighting this change in data as time reduces we can infer that bidding behaviour close to dispatch is the result of material changes in circumstances, forcing changes in subjective expectations, rather than being motivated by the intention to mislead others. The material benefit in rebidding close to dispatch is because information becomes firmer and clearer as time reduces to dispatch.

From the AEMC's perspective, in determining whether or not to make the Draft Rule, is it clear that the rebidding close to dispatch follows the motive to mislead others? We cannot highlight with any degree of confidence a quantity of rebids made close to dispatch that are subject to a misleading delay.

The evidence may not support the need for further regulations

We consider the evidence in this submission suggests the term ‘late rebidding’ is misleading, rather than the rebidding itself. This is shown in the schematic below, adapted from the AEMC’s Draft Determination, which works on the premise that the existing offer is not misleading because of the change in circumstances (b) and the change in intentions (c) happen close to when the rebidding (d) is made, which is close to dispatch (e).



Consistent with the evidence we have put forward, rebidding close to dispatch is more likely to occur on the basis of firmer and clearer information at the relevant time, which is a material change in conditions, leading to a change of the trader’s expectations. On this basis, there is evidence that rebidding close to dispatch should not be unnecessarily prohibited; only misleading rebidding. This evidence supports the logic behind the Draft Determination to not to restrict all rebidding close to dispatch.

AEMC’s premise is that misleading rebidding is resulting in disequilibria of price and a significant economic cost. The assumption is that the imposition of further regulations on rebidding close to dispatch will prevent misleading rebidding, set the price at an efficient equilibrium and improve the economic performance of the NEM. The AEMC assumes that the Draft Rule will work perfectly and misleading rebidding will be prevented whereas efficient rebidding will not be. It is worth questioning this assumption. We believe to impose a regulatory burden the AEMC is required to prove that the behaviour is material **and** worth regulating.

We do not believe the AEMC has compiled enough evidence to prove the majority of rebidding to dispatch is to mislead others. CS Energy questions whether the materiality threshold for further regulation has been made.

In addition, we do not believe the Draft Rule will operate as intended and will restrict efficient rebidding. We will explain this in section 2.

The NEO requires us to consider the long term interests of consumers

The press release accompanying the Draft Determination explains the Commission's position with regards to the NEO.

"Some last minute bidding behaviour can lead to inefficient market outcomes if other market participants cannot respond to changed prices in time," ...

"We expect the new arrangements will lead to more efficient wholesale price outcomes in the short term, and create investment signals that better reflect underlying conditions of supply and demand, in the long term interests of consumers."

It is worth challenging the link between the ability of some market participants responding to short term changes in market prices and the long term interests of consumers in the NEO.

Firstly, we must state that market participants, be they base load, intermediate or peaking generators, retailers, speculative traders or demand side participants (or possibly all of these), are sophisticated parties that have made a strategic choice in how they allocate capital to the electricity market. Parties that invest capital in the electricity market do so with an expected risk and return in an active, not passive manner. The investment may be in generation, customer acquisition, derivative positions or control systems for demand side participation. In the sense of the NEO we consider market participants are separate to consumers, as true consumers do not allocate capital in the market.

If we consider the consumer in the sense of the NEO for Queensland, they face the hedged cost of wholesale electricity, reflected in the regulated retail tariff set by the Queensland Competition Authority (QCA). Approaches to setting the wholesale energy cost allowance have changed over the years, but at present the QCA employs ACIL Allen to calculate a hedging cost of a prudent retailer and has done so since 2012-13.

These regulations mean that the consumer is not taking a speculative position in the market. In recent times the wholesale energy cost allowance in the regulated retail price has been predicted to increase as LNG compression load increases demand and gas prices.

Ignoring the regulations, in theory the competition in the retail market should drive wholesale cost element of the retail tariff down to the efficient level. Should two different retailers invest capital in retailing, acquire customers on a fixed tariff rate and then decided to hedge the load with different approaches, (one speculating with limited non-firm hedging, the other with electricity or weather derivatives), we should only expect the consumer, in the longer run, to face the efficient hedging costs. This is because the retailer that hedged successfully would use its advantage to improve its commercial performance over the other. We question why the AEMC should be interfering in this process of effective allocation of capital.

There are a number of references in the Draft Determination as to the ability of demand side participants and gas-fired peaking generators to respond to short term changes in market conditions. Demand side participants and peaking generators are not consumers, but producers in the sense of the NEO.

The link here to consumers in the sense of the NEO would be if these producer participants were systematically discriminated against by the auction rebidding Rule and therefore preventing consumers from benefitting from an efficient level of competition . This is shown in the following statement from the Commission:

“The Commission considers that some instances of late rebidding by generators can prevent other market participants from acting on their learning and skew the market towards outcomes that are more favourable for those generators that are online and regularly being dispatched. The technology and operational cost characteristics of different generators mean that certain generators are more often online than others. As such, bidding behaviour by these generators can entrench market outcomes that are more in with their commercial interests”.

We do not consider this statement is supported by the evidence put forward in the Draft Determination.

The role of the NEM auction is to ensure the price reflects the balance of supply and demand. The NEM auction is extremely successful⁵ in calculating price as it reflects the ability for supply to match demand every five minutes. In addition, every participant that invested capital knows these rules and made their choice as how to invest that capital. We do not consider there to be difference in underlying supply and demand compared to that of the NEM today, which is derived from the investment of capital; trading in electricity futures; scheduling of fuel supply; scheduling of maintenance; publication of MTPASA and STPASA; Predispatch; P5min Predispatch and then the final closing auction.

We question the benefit to the consumer if the Rules are changed to distort the competitive dynamic to the advantage of producer participants that have chosen to speculate capital in non-firm hedging arrangements. The consumer, who did not elect to speculate capital on the wholesale electricity price, will not be served should market risks be diminished and profits improved for some participants through the imposition of a regulation on another class of producer. A transfer of wealth between two different classes of producer will not benefit the long term interests of consumers under the NEO.

It is worth asking the question whether producer participants, assumed to be disadvantaged by the rebidding rules, are forced to enter into non-firm hedging arrangements because other suppliers are not offering them reasonably priced electricity derivative products? If this was the case then our arguments over these producer participants’ choice of investing capital would not be true, as they would be forced into investing capital in non-firm hedging approaches and then exposed to ‘unfair’ rebidding rules. This would represent a market failure.

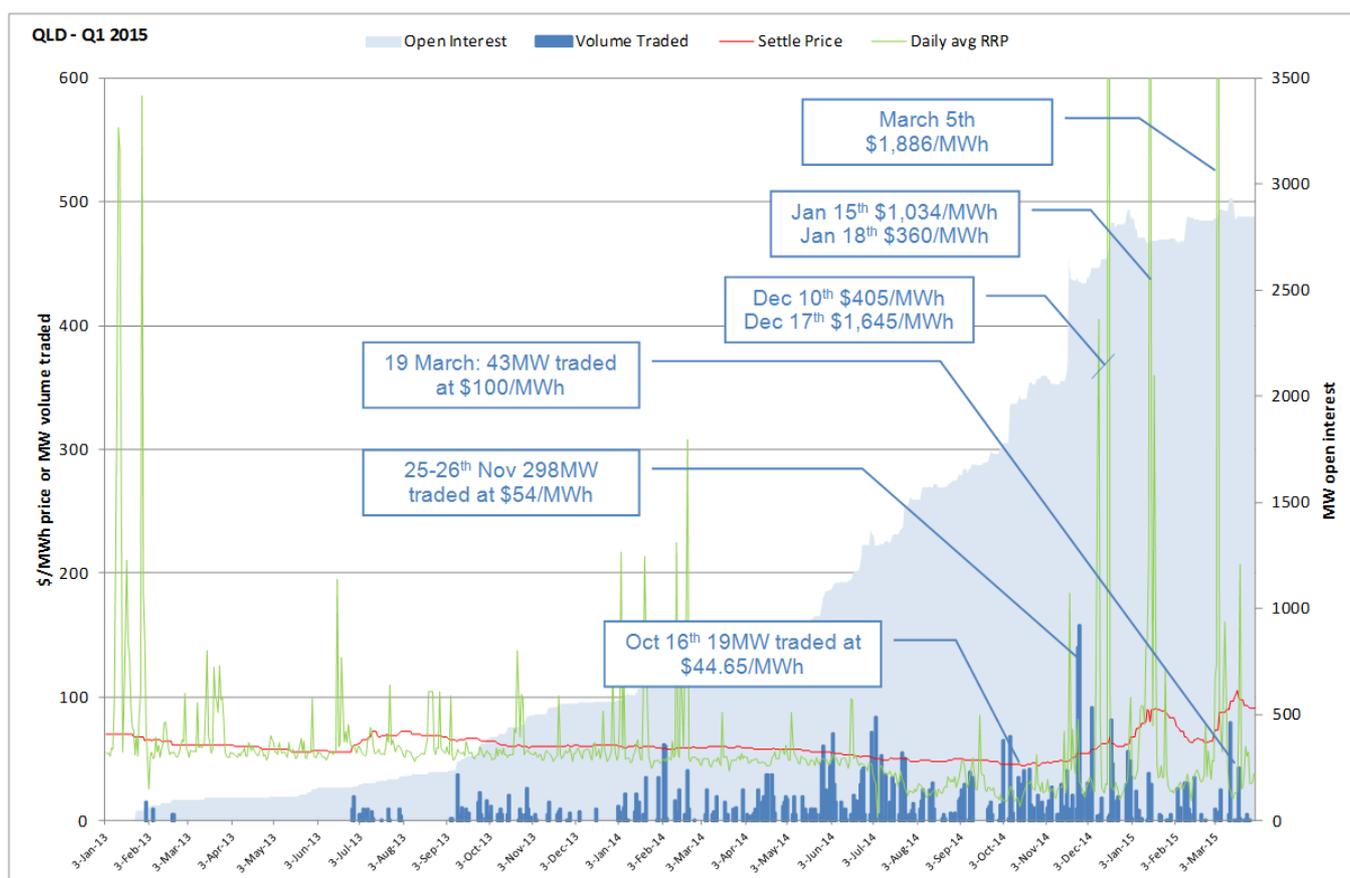
However the price and availability of electricity derivatives has been reasonable, as shown in Appendix 4: Traded prices electricity derivatives on the power exchange.

⁵ Bar the treatment of the Fast Start Inflexibility Profile, which is somewhat haphazard due to the NEMDE commitment run

The figures show there was significant open interest, volume traded and the opportunity to hedge quarterly electricity volumes at very reasonable prices. For further information on the data presented in the chart, please refer to the appendix.

The chart shows participants who did not hedge the Q1 2015 in particular **chose** not to do so as they expected low price outcomes. The low price expectations are shown by the price for Q1 2015 derivatives dropping throughout the year to Q4 2014. It suggests that some participants, potentially speculators, deliberately “shorted” QLD Q1 2015 by selling significant volumes of Q1 2015 contracts and taking exposure to high prices during the period.

We note that the trough in pricing of the Q1 contract occurred in October at less than \$45/MWh, which was a value, ex-carbon, of the average pool price for Q1 2014. The maximum price was approximately \$100/MWh⁶ near the end of March as participants may have sought to cover exposure to forecast very high demand in STPASA (which was forecast for a number of days, but did not eventuate).



⁶ If a participant bought or sold Q115 for \$100/MWh on the 19th of March this represents the average the participant would pay or receive for the full quarter. It comprises of both settled price periods (i.e. historic) and future price periods.

The AEMC has taken the view⁷:

“Absent the ability to rely on a competitive supply or demand side response, the estimation of forward contract prices becomes an exercise in predicting generator behaviour. Forecasting the intent and effectiveness to which generators will engage in late rebidding in the future becomes the driver of contract value, rather than the fundamental underlying market conditions”.

We consider this view to be simplistic, because it appears to be based on an assumption that high prices are a function of the ability of some participants to mislead others through late rebidding. It suggests prices are the function of a defect with the NEM auction rather than reflective of competition in the NEM. We consider the evidence put forward in this submission does not support this statement.

⁷ Page 21 Draft Determination, Bidding in Good Faith

Section 2: Assessment of whether the Draft Rule will perform as intended

As we understand it, the proposition of the Draft Rule is to prohibit what is termed ‘misleading rebidding’ in circumstances where participants are intentionally delaying rebids with the purpose of disadvantaging other participants.

The evidence we have presented in the first section of this submission (and appendices), shows that it is unlikely that misleading rebidding occurs, but rather, rebidding towards the end of the ‘auction’ occurs due to firmer and clearer information being available. This finding is contrary to the conclusion of the AEMC and as such we consider the Draft Rule is not required. Furthermore we submit that:

- the main sections of the Draft Rule (3.8.22A(a), (b) and (b1)) will not fundamentally require a Participant to change its behaviour, as these proposed rules prohibit essentially the same conduct as the existing clause 3.8.22A(b), however, due to the inclusion of various limbs of proposed clause 3.8.22A(c) a Participant risks prosecution despite available evidence, even where it is in strict compliance with the rules; and
- proposed new clauses 3.8.22A(d) and (e) impose new and additional obligations that are uncertain, and may limit the market’s efficiency by limiting circumstances in which an offer can be changed, to the detriment of consumers.

Our view is the Draft Rule has the potential to lead to inefficient outcomes and behaviour, contrary to the views of the AEMC in this regard. We further detail our concerns below.

1. *Uncertainty*

Proposed new clause 3.8.22A(d) is a new civil penalty provision which imposes a new obligation upon Participants to ensure that rebids are made as soon as reasonably practicable after the relevant Participant becomes aware of the change in material conditions and circumstances on the basis of which it decides to vary its dispatch offer or dispatch bid. This Draft Rule can lead to uncertainty for Participants as it is not clear:

- what the event that starts the ‘reasonably practical time’ period is intended to be; or
- what is a reasonably practical time period, particularly having regard to the contents of proposed new clause 3.8.22A(e).

Given this uncertainty, a trader is likely to have significant difficulty in determining how quickly they need to rebid in response to an event as they may be required to consider (or attempt to consider) information that is generally outside the knowledge of traders (for example, the technical capabilities of other generators). This may distort the market and lead to inefficient outcomes. In those circumstances, compliance with the rule cannot possibly fulfil the objective of attempting to prevent ‘misleading rebids’ if traders are required to hold off on efficient rebidding in order to comply with the requirements of this clause.

2. *Unreasonable inferences*

Proposed New Clause 3.8.22(e)

In addition to the uncertainty caused by proposed clause 3.8.22A(d), proposed new clause 3.8.22A (e) requires (through the use of the obligation “*must*”) a Court to consider whether a rebid was not made as soon as reasonably practicable in breach of 3.8.22A(d) by having regard to:

- the new market design principle; and
- whether other market participants had the opportunity to respond.

In relation to (1) above a trader will likely want to lodge a rebid when the information upon which the trader based their expectations for an interval change, thus changing their expectation. This is likely to be when the time to the commencement of the trading interval is reduced and the underlying supply and demand conditions are less subjective and changes more material. To impose a regulatory burden that may have the consequence of bringing forward rebidding when information is more subjective and changes less material may result in sub-optimal rebidding. This is not consistent with the NEM dispatch engine, which reveals the underlying conditions of supply and demand, particularly as the time to the close of the auction reduces.

As set out above, (2) is problematic from a trader’s perspective because it requires a Court, and therefore a trader to consider the time within which all market participants are able to respond to a rebid. This information is generally outside of the knowledge of the traders and is subject to change widely based on the circumstances of each market participant at the time. Given the underlying technical parameters of the plant of demand and supply side participants, there will always be a participant that is unable to respond to each rebid no matter how long before the commencement of the trading interval the rebid is made. For example, a participant has made an investment decision in relation to the technical capability of its plant which prevents it from being able to respond quickly to changing market conditions, a participant does not have a 24 hour trading desk, or a unit is offline and requires some extended period of time to come back into service.

There is no information available to traders in relation to the ability of demand side participants to respond to a rebid and only limited information about the ability of supply side participants’ ability to respond to a rebid (aggregate availability information being the only available information at any time). On that basis, it is likely that rebidding (particularly within one or two dispatch intervals prior to dispatch) will not provide the opportunity for at least one market participant to respond. In those circumstances, the Draft Rule may require a Court to find a breach of the Rules even when a rebid was made by the trader, without delay, following a change in circumstances (with the trader having no intention to mislead others). We believe if at least one market participant was unable to respond it will prejudice the position of the trader rebidding at the time, because a court may infer the motive for rebidding was not the change in material circumstances cited by the trader, but the inability of another participant to respond.

Proposed New Clause 3.8.22(c)

Proposed new clause 3.8.22(c) allows a Court to infer, in spite of evidence that might be available to it, false or misleading conduct from a range of matters, including patterns of conduct of the Participant,

This allows the applicant in a matter regarding a prosecution of an alleged breach of clause 3.8.22(a) or (b) to introduce a broad range of information (whether based on circumstances surrounding the alleged breach, or based on events occurring on other days, or otherwise) that will increase the chance of conviction but does not require the applicant to positively prove that the relevant offer was misleading.

In particular we note that proposed clause 3.8.22A (c)(3) provides the ability for a pattern of behaviour to infer an offer had been misleading. We cannot see how this can be of any value given the perceived problem the AEMC has defined. Rebids made on another day or in relation to a different trading interval or different generating plant will have nothing to do with the offer that is assumed to be false or misleading. Put another way, these offers and rebids on other days or in relation to other generating plant did not mislead any participant as to the offer that is under examination by the Court. There is no causal link between the two and a Court should not be forced to create a link to infer a breach of the Rule.

3. AER powers after Rule is made

The Draft Rule requires the AER to update the Rebidding and Technical Parameters Guideline. We consider the ambiguity of the Rule, where the AEMC allows the AER to draft guidelines after the Rule is made could allow regulatory opportunism. This is concerning given the comments of the AER in the Public Forum on the 18 May 2015.

We have some concerns that the Draft Rule (reporting at 3.8.22(c)(2a), (c)(3) and (e) and exemptions at 3.8.22(ca) provide the AER with the power to inhibit rebidding during the *late rebidding period* even where those rebids are not misleading or otherwise in breach of the proposed rules. For instance the AER could require significant amounts of information to be provided in the reports required under clause 3.8.22(c)(2a), which will have the effect of discouraging participants from making efficient rebids during this period. This is unlikely to lead to an efficient outcome in the market, particularly to the detriment of consumers. Further, it is possible that there will be a significant increase in deadweight compliance costs (in order for the reports to be submitted).

The AER said during the Public Forum that it had not yet considered in any detail the content of the guidelines but may seek to:

- place a higher burden on participants that AER monitoring has been focusing on for some time with the guideline serving as an extension of the current monitoring; and
- introduce a new power to require employees of market participants (traders) to present to the AER for interviews.

In making such statements, the AER has indicated an intent to use its drafting of the guideline to focus on price outcomes by targeting some participants and exempting others from the reporting obligations. This could serve to act as a partial gate closure which the AEMC has previously determined would not drive an efficient market outcome.

The AEMC indicated at the Public Forum that it had not contemplated attending for interview to be an element of the reporting obligations. In those circumstances we consider that permitting the AER to

develop the guidelines following the conclusion of the consultation process on the Draft Rule may lead to an application or distortion of the Draft Rule not contemplated by the AEMC.

The ability for the AER to publish guidelines (and for these guidelines to become de-facto Rules) allows the AER the opportunity to place its own interpretation on the Rules, which can be inappropriate in circumstances where the AER also has the power to bring prosecutions of those Rules. If there is to be a late rebidding report, and exemptions to be permitted to the requirement to submit a late rebidding report, we consider that the contents and exemption criteria should be made known through the Draft Rule, and for participants to have an opportunity to consult on the requirements in the same manner and at the same time as participants are consulting in response to the Draft Determination.

In addition to the above, requiring traders to submit reports to the AER rather than focus on trading in the NEM will come at a cost, either in price discovery or in overheads.

At the Public Forum held on the 18 May 2015 it was revealing when the AEMC staff and members of the audience discussed the reporting requirements. Participants explained they rebid frequently and would be committing considerable resources to reporting to the AER. It was discussed whether the reporting to the AER would be an unnecessary “brake” on efficient rebidding. The AEMC staff member described the intent of the Rule was to change the incentive to rebid ‘late’ and the number of reports may therefore be reduced.

The obvious conclusion to be made was that the AEMC has effectively concluded that the majority of rebids made close to dispatch are misleading (which we consider unsupported by evidence) and would therefore not be made based on the proposed new rules.

Instead, what we perceive to be the likely outcome is that traders will be incentivised to rebid earlier, on more subjective data, and less likely to rebid later, on less subjective data, because of the new rules, including the new reporting requirements. This cannot be seen as an efficient means by which to ensure that consumer outcomes are optimal.

On this basis, we submit that the Draft Rule should not be made, or at least the following elements of the Draft Rule should not be made,: 3.8.22(2a); 3.8.22(ca); 3.8.22(e) (1a-1b); 3.8.22A(b1); 3.8.22A(c3), 3.8.22A(d), 3.8.22A(e); definitions in Chapter 10; and 3.1.4(a)(2).

Appendix 1: Analysis of timing of rebids

We have (using various samples of data as extracted from the market systems) investigated the time lag between the submit time of rebids and the time of the event or occurrence cited in the rebid reason.

For the months, January to March 2014 and December 2014 to March 2015 (inclusive) for rebids made between 06:00 and 20:00 the average 'delay' was calculated as the difference between the time referenced in the 'REBIDEXPLANATION' for example "14:31A CHG IN FORECAST::1530 PD PRICE INCREASE" and time it was submitted, recorded as 'OFFERDATE', for example '14/01/2014 14:36', with this rounded down to the nearest minute. The difference is approximately 5 minutes. The analysis is approximately because the time in the rebid reason is a text value not a specific time.

	QLD	VIC
Rebids (count)	34972	14652
Avg delay	2.9	4.0
Max delay	660	857
StdDev delay	13.6	24.2
Correlation		
Count-price	0.53	0.65
Avg delay-price	-0.02	-0.09
StdDev-price	0.03	0.04

Appendix 2: Rebids highlighted by the AER in \$5,000/MWh report

The following table is taken from an AER Report where the pool price was in excess of \$5,000/MWh. It has been included in this report because the 'submit time' and time in the 'rebid reason' show not evidence of material delay.

Significant Rebids for 4.30 pm Trading interval

Submit time	Participant	Station	Capacity rebid (MW)	Price from (\$/MWh)	Price to (\$/MWh)	Rebid reason
12.48 pm	Origin	Mt Stuart	120	Price cap	<96	1245A constraint management - N^Q_NIL_B1 SL
12.52 pm	Origin	Mt Stuart	-18	96	N/A	1250P change in avail - ambient conditions SL
12.53 pm	CS Energy	Gladstone	-40	0	N/A	1253P unit rts revised-SL
12.56 pm	Origin	Mt Stuart	-18	96	N/A	1255P plant conditions – ambient temp SL
1.04 pm	ERM Power	Oakey	20	300	13 499	1304P fuel management::change MW distrib.
1.16 pm	ERM Power	Oakey	20	300	13 499	1316P fuel management ::change MW distrib.
1.50 pm	CS Energy	Gladstone	160	Price cap	<44	1349A interconnector constraint- binding-SL
1.59 pm	ERM Power	Oakey	40	13 499	<0	1358P fuel management ::change MW distrib
2.05 pm	CS Energy	Gladstone	80	<93	Price cap	1403A interconnector constraint-QNI binding and yabulu increasin
2.53 pm	Arrow	Braemar 2	42	<285	Price cap	1450A change in 5min PD: QLD demand lower than 30 min PD SL
3.10 pm	Millmerran	Millmerran	30	7	Price cap	15:04 A RRP above PD
3.11 pm	Callide	Callide C	26	Price floor	Price cap	1505A RRP above PD
3.17 pm	ERM Power	Oakey	23	<302	13 499	1516P ambient conditions ::change MW distrib.
3.38 pm	CS Energy	Wivenhoe	250	15	Price cap	1528A interconnector constraint-QNI binding with prices above \$1
3.44 pm and 3.46 pm	CS Energy	Gladstone	140	<290	Price cap	1524A maintain dispatch margin-SL
3.57 pm (effective from	ERM Power	Oakey	42	12850	436	1556F change in pd: fcast price inc::change mw distrib.

4.05 pm)						
4.09 pm (effective from 4.20 pm)	ERM Power	Oakey	22	436	12850	1608F change in pd: fcast price inc::change mw distrib.
4.11 pm (effective from 4.20 pm)	Origin	Mt Stuart	84	<96	12 950	1608A constraint management – N^MQ_NIL_B1 SL
4.14 pm (effective from 4.25 pm)	ERM Power	Oakey	22	12850	Price floor	1614F change in pd: fcast price inc::change mw distrib.
4.17 pm (effective from 4.25 pm)	Arrow	Braemar 2	33	13 500	29	1615A QLD price higher than forecast SL
4.20 pm (effective from 4 pm)	CS Energy	Gladstone	120	22	Price cap	1617A interconnector constraint-QNI binding – other units increa
Total capacity rebid from low to high prices			634			
Capacity Withdrawn			76			

Appendix 3: Motivations to rebid - analysis of Predispatch

Process

This appendix attempts to identify whether there is evidence that a participant rebidding close to dispatch is motivated from material changes in circumstances or to benefit from misleading others. It also attempts to identify whether the information improves as time reduces, in that it becomes less subjective and more material, closer to dispatch.

Please note that this work is not assessing whether the rebids that were made on these days were made in Good Faith. Instead, we sought to understand whether there was motivation to rebid close to dispatch, due to material changes in circumstances. If we found no material changes in circumstances then this could lead us to believe the motivation of rebidding close to dispatch may be to mislead other participants. This is analogous to considering evidence of motive, rather than looking at testimony (which would be looking at rebid reasons and using the AER's s28⁸ powers to obtain more information, which we do not have).

The approach has used the AER's \$5,000/MWh reports for four reasons. The first is that the AER has highlighted 'late rebidding' on these days as a cause of the high prices. The second is that the AER has helpfully reported on rebidding; price-quantity combination rebid; reason and the trading intervals which these rebids applied to. The third is that the AER makes useful comment on the performance of Predispatch and demand side participation. The fourth is because these periods (of high prices) are material and from a policy perspective we should seek to understand whether they are efficient.

We have also chosen two other periods and in those instances juxtapose our evidence with comments made by AEMO (as the AER did not prepare a \$5,000/MWh report: in these instances the price was not high enough).

In these two other periods we consider whether a rebid made on the basis of the inability of participants to physically respond, (as indicated by interconnector flow, price, generators' data, or other information in Predispatch) would be 'late', as the inability of others to respond would not be known.

The approach we have taken is quite simple. We have taken the AEMO runs of Predispatch and P5min Predispatch and plotted on scatter graphs data as it changes depending on the number of trading or dispatch periods remain until dispatch. By doing this it becomes evident when and how a forecast changed.

Findings

Overall, we found that the examples may indicate that information in the NEM auction improves, such that subjective expectations are less subjective, closer to dispatch. It provides an indication that rebidding close to dispatch during the periods investigated could well have been motivated by material changes in circumstances and changes in subjective expectation, rather than the intention to mislead others. We could not highlight an absence of a change in material circumstances, which is the

⁸ Section 28 of National Electricity Law

requirement of 3.8.22A, to infer an offer or rebid would not have been in Good Faith (or would have been misleading). We cannot infer from the evidence that participants should have rebid earlier.

The improvement in data was more evident in the Predispatch data, rather than the P5min Predispatch data, where, as a forecast P5min Predispatch appears less likely to converge to actual than Predispatch. There are two reasons for this. The first is that in P5min Predispatch is only one hour, thus the range of possibilities is limited and the second is that it is constantly 'rebased' of the forecast used to dispatch generating plant and calculate price.

The days, 17th December 2014, 15th January, 18th January and 5th March 2015 were days of significant rebidding by participants. These days were characterised by significant variations in demand in both the Predispatch and P5min Predispatch. On these days it was difficult to establish that some participants had been systematically discriminated against by the NEM auction, because on these days demand side participants and gas-fired peaking generators actively participated in the market. It was evident that these participants, as did others, including CS Energy, rebid close to dispatch on these days.

We consider these days provide credence that rebidding close to dispatch is more likely to be efficient, rather than inefficient. This supports both our and the AEMC's view that it would be inefficient to impose a gate closure and restrict all rebidding close to dispatch. It does not support the need for further regulations on rebidding, which we have explained in Section 2 of this submission may unnecessarily inhibit this behaviour.

Additionally we found that a rebid made on the basis of the inability of participants to physically respond, (as indicated by interconnector flow, price, generators' data, or other information in Predispatch) would not be 'late', as the inability of others to respond was not known. Instead it appears more likely to be a reaction to new events as they develop and subjective expectations change.

This finding is supported by the 13th and 26th January 2015 where there may have been more motivation for participants to rebid closer to dispatch and to mislead other participants. What we found interesting was that information did improve closer to dispatch, because it became less subjective, as the P5min Predispatch information provided an indication on whether gas-fired generation would commit, demand side participation would occur or simply demand would be sustained. Whether or not these events happened remained subjective up to dispatch. They were represented to the trader through Predispatch and P5min Predispatch and dispatch as time reduces, but this information was not known earlier.

These findings are interesting because they suggests that the Draft Rule, if we assume it would perform perfectly, when applied to summer 2014-15 would not have materially changed pricing outcomes. This suggests the potential benefit of implementing the Draft Rule, in terms of economic efficiency, to be low.

We consider these days provide credence that rebidding close to dispatch is more likely to be efficient, rather than inefficient, because rebidding does not appear to be motivated by wishing to mislead others.

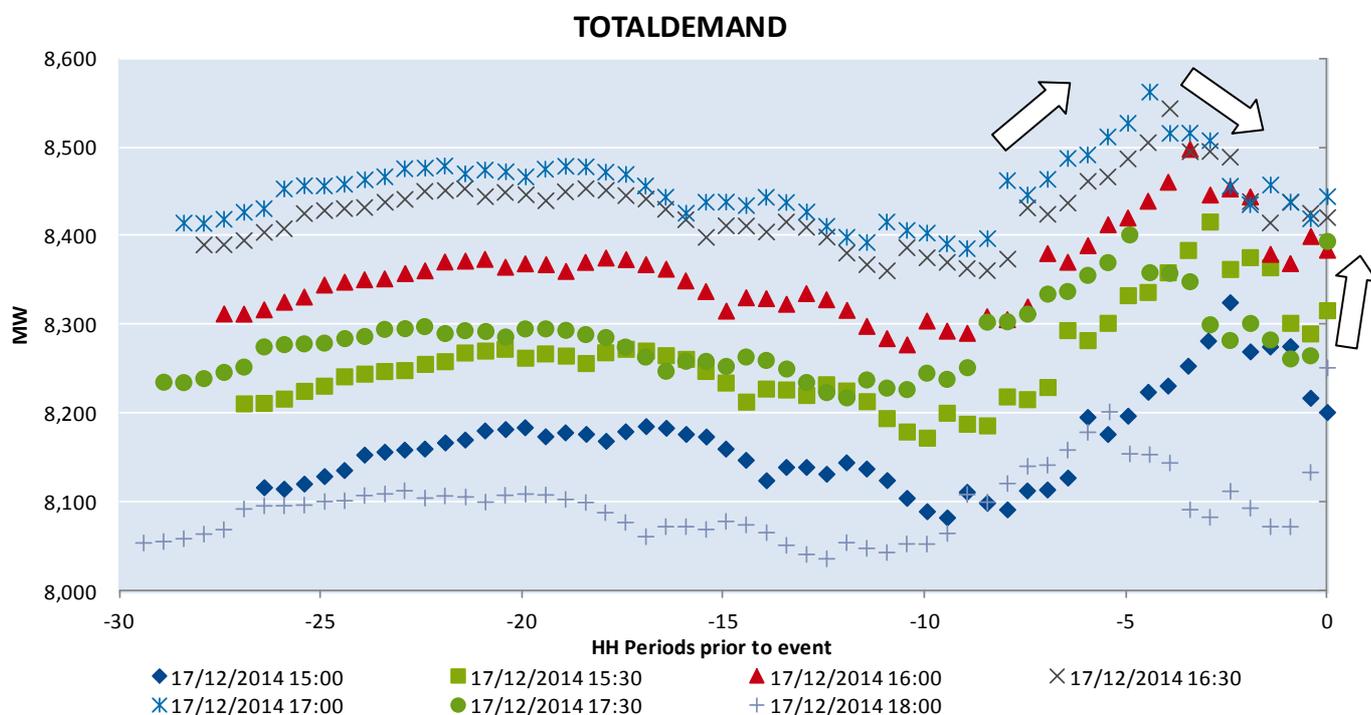
1. 17th December 2014

This day is interesting because the AER considers “half hour demand and availability was close to that forecast four hours ahead” and “the key underlying driver was supply conditions brought about by participant rebidding”.

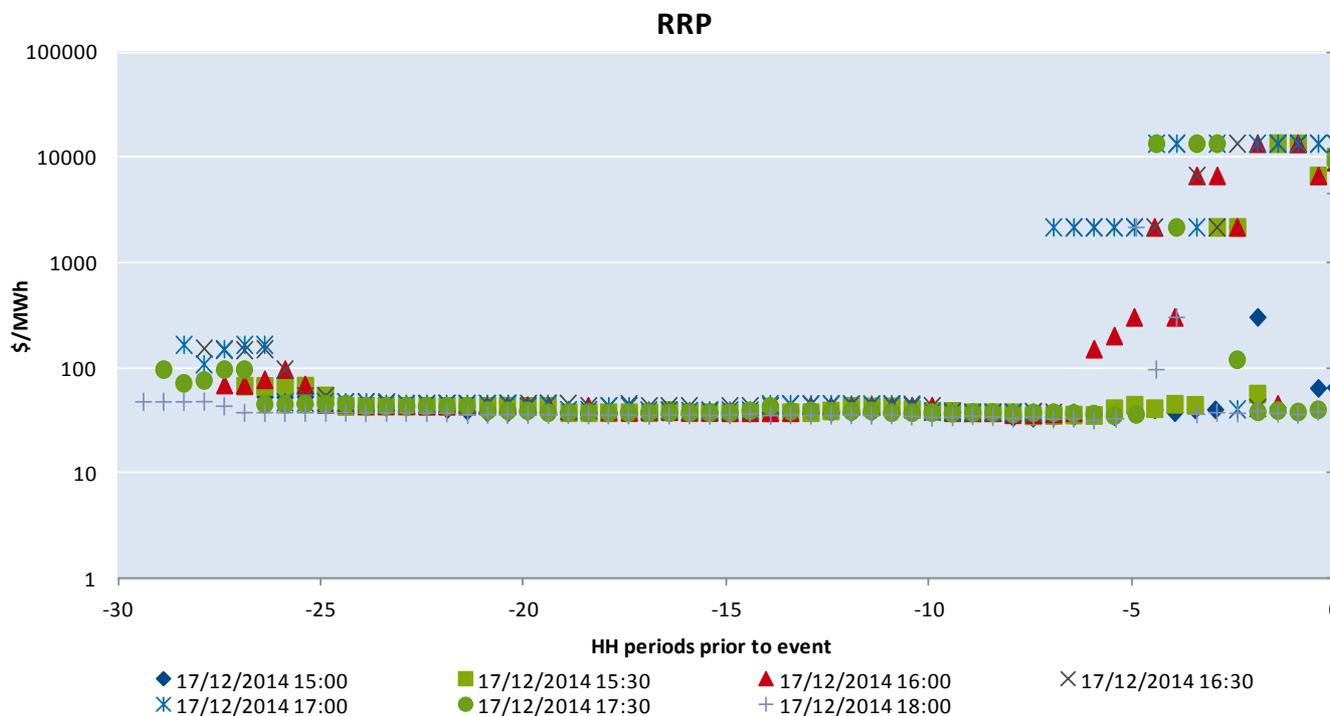
If we investigate the data, it is clear that the AER’s snapshot of four hours does not tell the whole story. As noted in the report, RTA Yarwun was unavailable from 1:40pm. Thus materially changing supply for the afternoon. In addition, demand increased and then decreased by up to 200MW in the Predispatch schedules. It is unknown whether the reduction in demand to that forecast two hours prior to dispatch was a load reduction at Sun Metals or at other facilities. One can expect with prevailing prices, any demand side participation would have been called upon.

The following figure shows the half hourly Predispatch data, for different forecast inputs into the pricing calculation. The following chart shows the input ‘TotalDemand’ for the Predispatch price calculation. The Dispatch demand forecast is for the end of the 5-minute dispatch interval whereas the Predispatch demand forecast is a half-hourly average over the Trading Interval.

We have added arrows to show the movement of Predispatch data as time reduces. It is interesting to see that the demand forecast increased significantly from 3 hours to dispatch, only to reduce then increase again with half an hour to dispatch.



This was reflected in prices, which were forecast to be high in Predispatch, before subsiding and then increasing with dispatch prices.



The following figure presents the P5min Predispatch data for a single half hour trading interval. The half hour consists of six five minute dispatch intervals, which are forecast an hour ahead. The figure therefore presents the twelve points of data per dispatch interval for the trading interval.

Dispatch

It must be remembered that actual demand ($t=0$) is just a forecast for the end of the 5 minute dispatch period, however this forms our benchmark as it is the value to which the market clears – in essence, the question is whether the AEMO or other data gets better as we get to the very last forecast, which is dispatch. In dispatch and the first interval of P5min Predispatch, AEMO add the Aggregate Dispatch Error¹ (“ADE”), which is a key point of difference to the rest of the hour long P5min Predispatch forecast.

We have not been able to positively identify, from the examples in this document, that the P5min Predispatch is more accurate as time reduces to dispatch. However its utility to participants is twofold: it reflects constraints, rebidding (availability, fast start profiles, price bands) by participants within the hour and provides a forecast for the start and end of the interval, rather than Predispatch, which is a forecast of the average value through the trading interval.

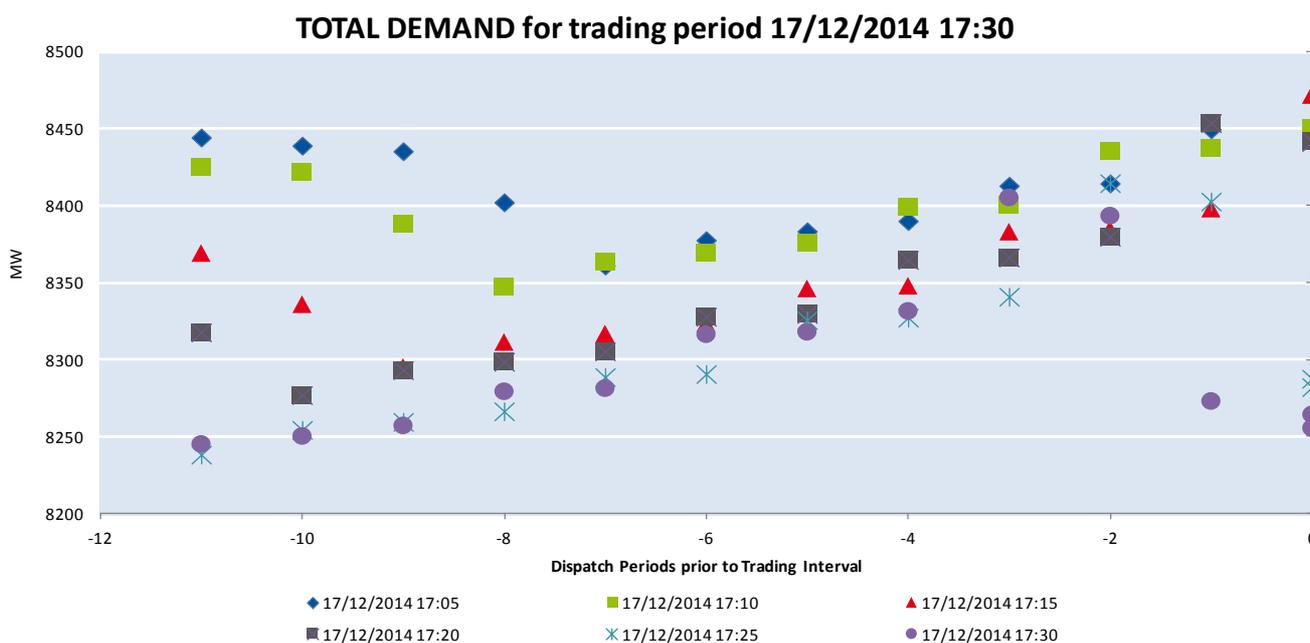
Relationship between Dispatch and P5min Predispatch

It could be that price differences in a trading interval are, in addition to rebidding, an artefact of the calculation of AEMO's Total Demand (which is based on the last two week's average change in demand for those dispatch intervals as 'Forecast Demand' and the level of loading of generator and Interconnectors (SCADA data) less Interconnector losses).

We consider it is reasonable the pricing calculation try to include the operating characteristics of the real world, in order to derive efficient prices as if there is uncertainty and variation in demand from five minutes to five minutes this should be reflected in pricing. In our opinion, to smooth the pricing, by ignoring these operational features could be inefficient, noting that in any case the NEM is settled on a "smoothed" average price of six dispatch intervals. Therefore the demand within a trading interval can change significantly, an not because of the forecast change in demand. The discrepancy between the values and inherent uncertainty it produces should not be discounted as motivation for traders to rebid.

The P5min Predispatch forecast constantly had the base point revised during this half hour as the NEM dispatch engine accommodates the variability in demand from that forecast over the five minutes, non-conformance and changes in system frequency. It may be sensible for AEMO to investigate this element of the P5min Predispatch forecast to provide more stable P5min Predispatch forecasts. We don't consider there is anything wrong with dispatch or the forecast, it is just that if dispatch varies (as it should) we question whether the P5min needs to rebase from the dispatch value, rather than staying on the original forecast.

The following figure shows the P5min Predispatch data for trading interval 17:30. The P5min Predispatch shows how demand forecast changed, with values tending down then up before dispatch. The P5min Predispatch forecast for each dispatch interval an hour ahead was closer (8,340MW) to the actual demand 8,394MW, than the last run of Predispatch at 17:04 of 8,266MW and the previous forecast at 16:34 of 8,262MW.



P5min Predispatch

AEMO's P5min Predispatch data is an automated process that uses forecast demand changes based upon the historical average percentage demand change relevant to that dispatch interval, based on the previous two weeks' worth of 5-minute demand data, to produce demand forecasts for all P5min intervals (other than the first interval) of every P5min run. It is therefore not a specific forecast of the conditions on that day and does not include assessments of demand side participation. The use of average historic changes in dispatch per 5 mins means the forecast should be less reliable at the hour than it is at the twenty minutes before dispatch. The issue is that the forecast is converging onto the level of dispatch; however this dispatch can be disrupted by non-conformance in the region through the aggregate dispatch error.

The P5min Predispatch period, with this being a rolling forecast based on the prevailing generation and interconnector metered data, (which are constituent inputs into TotalDemand), can 'jump' if there has been significant non-conformance between cleared targets and SCADA data, reflected in the Aggregate Dispatch Error and a change in the demand forecast from five minutes to five minutes (based on historic data, which is non-linear). The forecast constantly has the base point revised as the NEM dispatch engine accommodates the variability in demand from that forecast over the five minutes, non-conformance and changes in system frequency.

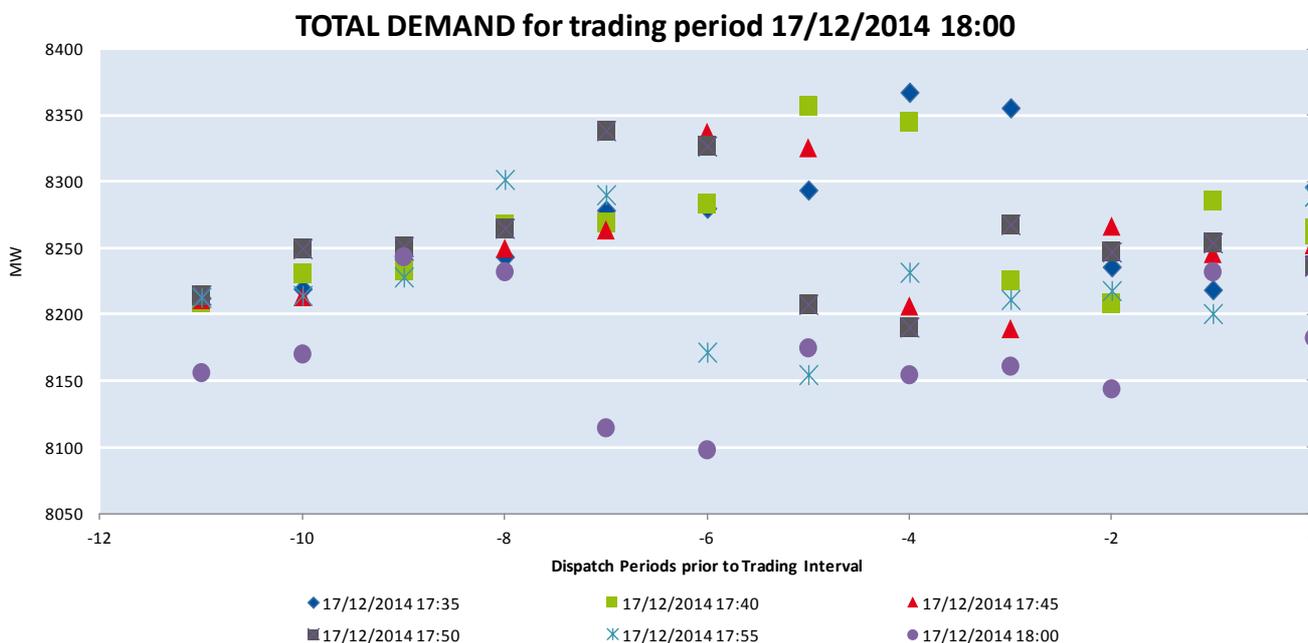
In this example the data improves throughout the trading interval, with this period characterised by a significant decrease in demand from 17:25, which was not included in the Predispatch forecasts. The last two dispatch intervals may have been affected by demand side participation or a dip in demand as businesses closed and residential demand increased.

The P5min Predispatch price forecast is shown in the table below. As forecast demand increased, the price increased. The high prices had been forecast in Predispatch runs from 13:04 to 15:04.

RRP for trading period 17/12/2014 17:30																	
RRP	Actual	Run_Datetime															
	4:10 PM	4:15 PM	4:20 PM	4:25 PM	4:30 PM	4:35 PM	4:40 PM	4:45 PM	4:50 PM	4:55 PM	5:00 PM	5:05 PM	5:10 PM	5:15 PM	5:20 PM	5:25 PM	5:30 PM
17/12/2014 17:05	\$13,499	\$40	\$40	\$40	\$39	\$39	\$39	\$39	\$40	\$41	\$13,454	\$13,454	\$13,454				
17/12/2014 17:10	\$13,454		\$38	\$38	\$39	\$37	\$39	\$39	\$39	\$40	\$13,454	\$13,454	\$13,454	\$13,454			
17/12/2014 17:15	\$13,454			\$37	\$37	\$37	\$37	\$37	\$38	\$38	\$41	\$96	\$96	\$42	\$13,454		
17/12/2014 17:20	\$13,454				\$37	\$36	\$37	\$37	\$38	\$38	\$41	\$96	\$50	\$41	\$13,454	\$13,454	
17/12/2014 17:25	\$37					\$35	\$36	\$36	\$36	\$37	\$40	\$41	\$41	\$40	\$40	\$41	\$38
17/12/2014 17:30	\$37						\$35	\$35	\$36	\$36	\$40	\$41	\$41	\$39	\$40	\$41	\$38

Unlike some of the examples that will follow, this day was not characterised by significant rebidding within or just before the trading interval. The last material rebid, changing 85MW from low to high price bands for the interval 17:30 was made by Origin Energy at 16:47 after CS Energy had made rebids at 12:58 and 14:39. The data shows that rebidding, in these timeframes, close to dispatch, was more likely to be motivated by changes in circumstances close to dispatch, rather than to mislead other market participants. Interestingly no participant rebid to the drop in demand in dispatch periods five and six of the trading interval, possibly because they were unable to do so.

If we look at the next trading interval, ending 18:00, the P5min forecast shows the same increase in the forecast as time reduces, which is then 'rebased' after demand drops in the dispatch intervals five and six of the preceding dispatch period, before continuing to increase in a linear manner as time reduces.



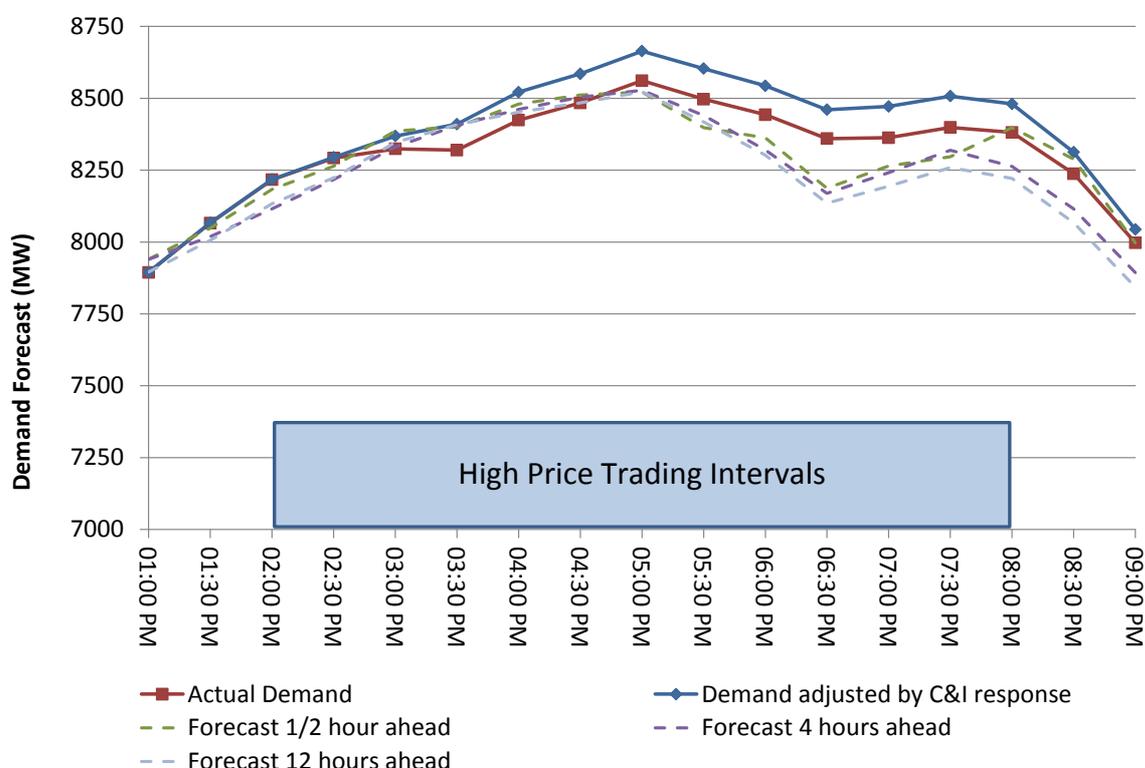
The P5min forecast is therefore reflective of these changes – prices forecast extremely high at the highest P5min demand forecast run at 17:15 and 17:20, before dropping at 17:25, after the actual demand decrease. Interestingly no participant rebid to the drop in demand in dispatch periods five and six of the preceding trading interval, possibly because participants were responding to short term minor changes in availability, including change in availability for Callide B, Kogan Creek and a trip of a Roma GT (Origin Energy had previously rebid Mt Stuart to higher prices at 16:47 for 17:30). This allowed the price to increase in the first two dispatch intervals and then reduce as Origin Energy’s Mt Stuart GTs increased loading after the rebid at 16:47 for 17:30 had rolled off at 17:35.

RRP for trading period 17/12/2014 18:00																		
RRP	Actual	Run_Datetime																
		4:40 PM	4:45 PM	4:50 PM	4:55 PM	5:00 PM	5:05 PM	5:10 PM	5:15 PM	5:20 PM	5:25 PM	5:30 PM	5:35 PM	5:40 PM	5:45 PM	5:50 PM	5:55 PM	6:00 PM
17/12/2014 17:35	\$13,499	\$37	\$38	\$39	\$96	\$200	\$165	\$165	\$13,499	\$13,499	\$39	\$38	\$44					
17/12/2014 17:40	\$13,499		\$96	\$165	\$200	\$301	\$301	\$301	\$13,499	\$13,499	\$40	\$38	\$42	\$47				
17/12/2014 17:45	\$53			\$150	\$150	\$301	\$301	\$301	\$13,499	\$13,499	\$40	\$38	\$41	\$44	\$44			
17/12/2014 17:50	\$38				\$165	\$301	\$301	\$301	\$13,499	\$13,499	\$39	\$38	\$40	\$40	\$40	\$38		
17/12/2014 17:55	\$37					\$119	\$96	\$119	\$13,499	\$119	\$38	\$37	\$39	\$40	\$40	\$36	\$37	
17/12/2014 18:00	\$35						\$40	\$38	\$119	\$37	\$37	\$36	\$38	\$38	\$38	\$35	\$36	\$35

All of the changes that have been highlighted in the Predispatch and P5min Predispatch schedules are material changes in circumstances that may change subjective expectations and require rebidding.

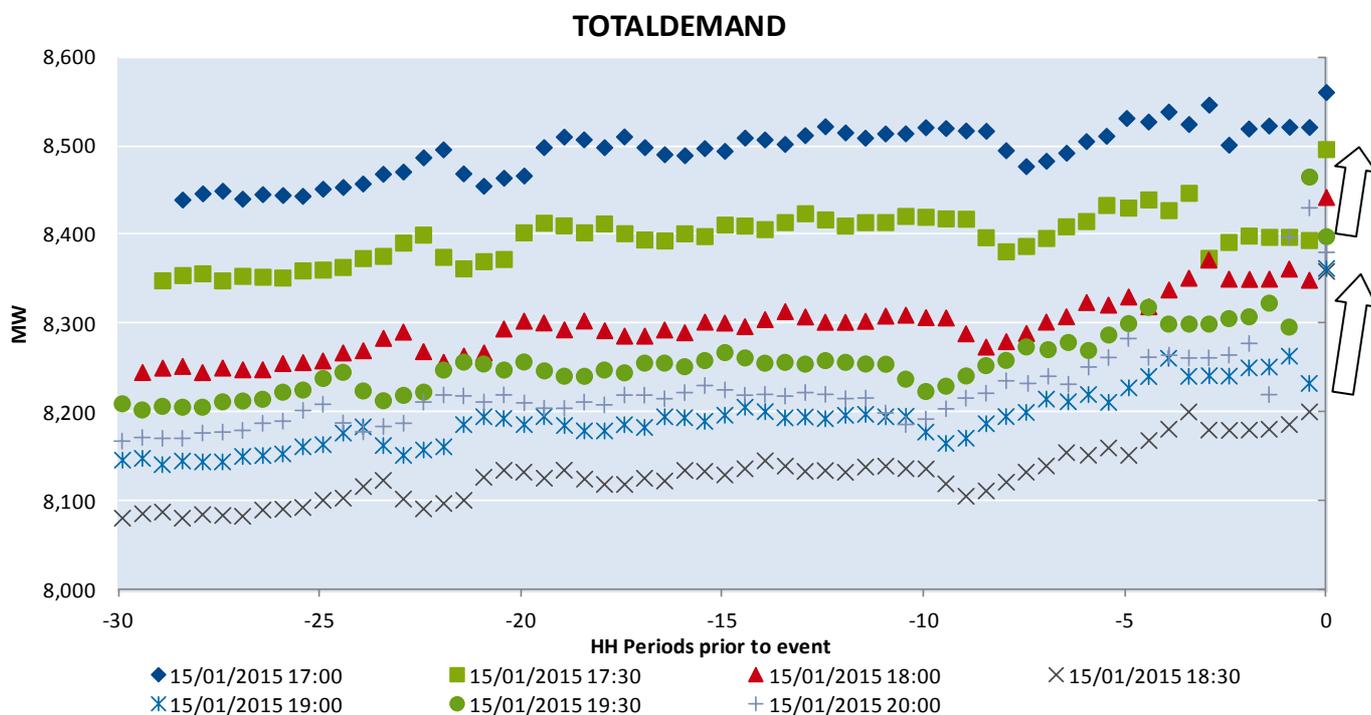
2. 15th January 2015

The AER comments how prices were higher at the 12-hour Predispach forecast, when compared to the 4-hour Predispach forecast. It also notes that the prices were higher in dispatch than Predispach. The AER highlights rebidding that was made approximately 4 hours ahead of dispatch and rebidding within the trading interval, which it calls ‘late rebidding’. It comments that “with the exception of the 7:30pm trading interval, rebidding within the trading intervals contributed to the high prices”. The AER provides some context of commercial demand side participation (which would otherwise have made the AEMO Predispach demand forecast less accurate) and that Predispach demand was significantly lower than actual.

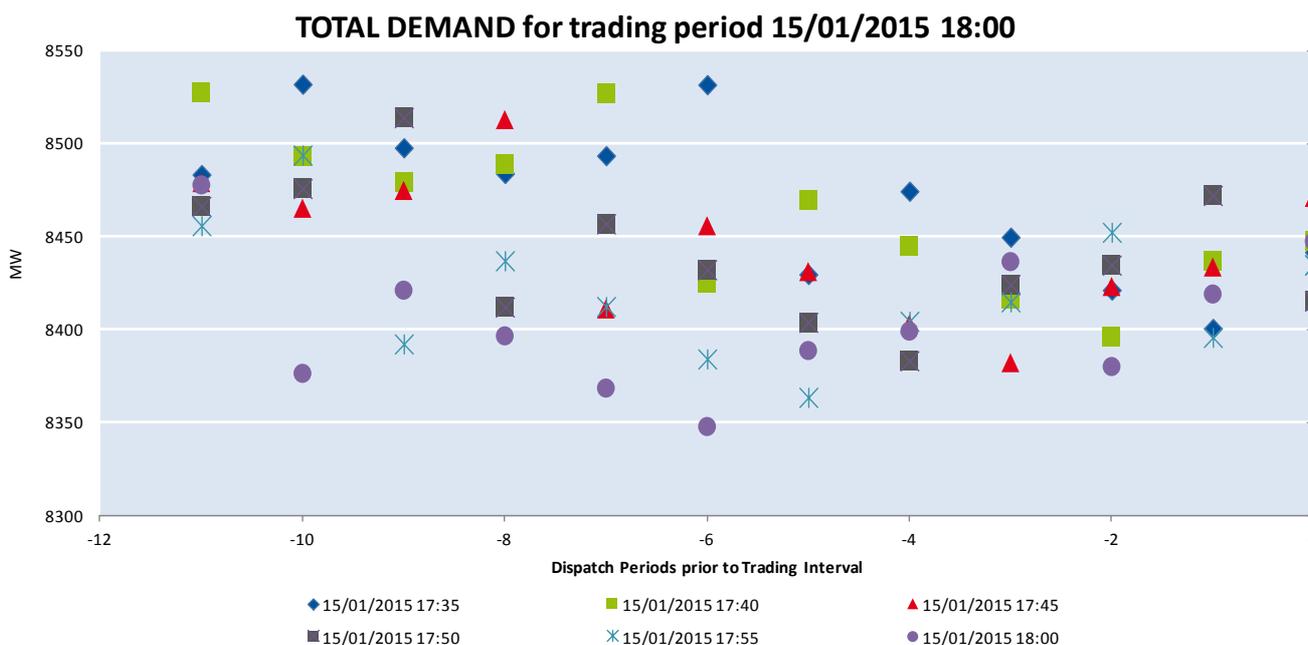


Source: AER, Prices above \$5000/MWh - 15 January 2015 (Qld)

The following figure shows the Predispach demand forecast for the period in question. Overall, AEMO under forecast demand at short notice but not in all instances.



The following figure presents the P5min Predispach data for a single half hour trading interval ending 18:00. This Predispach value was approximately 8,350MW at the time the P5min Predispach was published. The P5min was immediately presenting values near 8,500MW, until converging on demand approximately 8450MW.

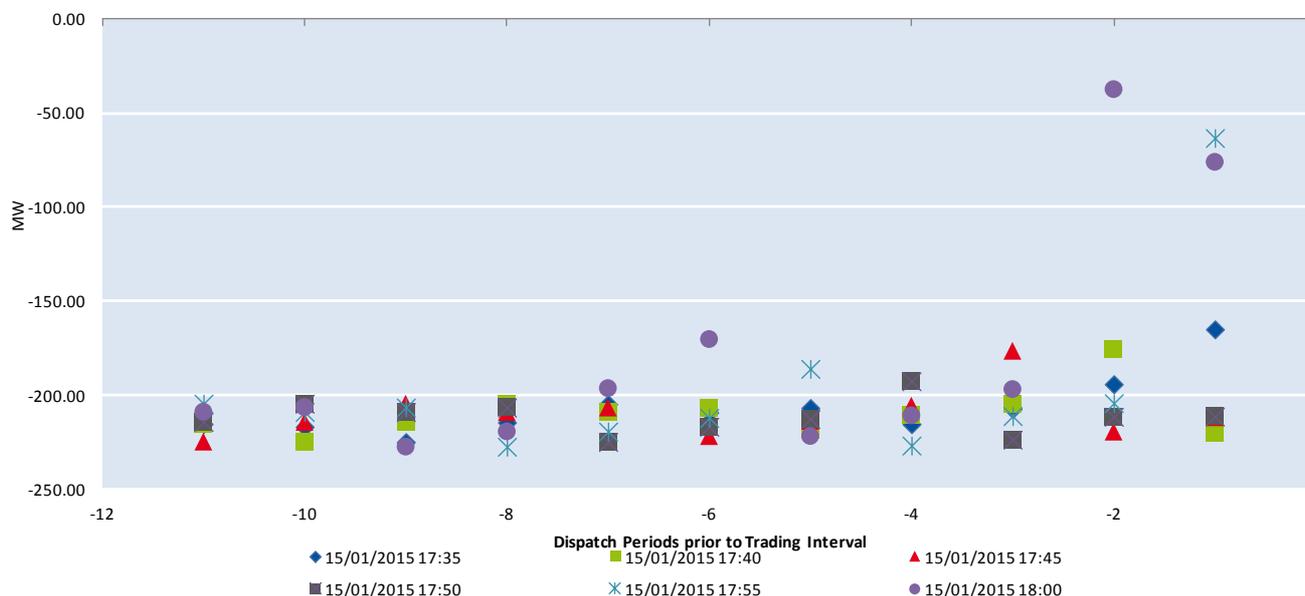


P5min Predispatch forecast high prices for the trading interval 18:00 less than had been forecast half an hour ahead, with these prices moderating closer to the Trading Interval. There was rebidding just prior to the trading interval by CS Energy (to higher price bands) and by ERM Power (to lower price bands). High prices followed for the first three dispatch intervals, and then followed by rebidding within the interval to lower price bands, by Callide and Arrow, reduced the price for the following three intervals. The rebidding was based on current events, such as the interconnector almost binding and the price above Predispatch price.

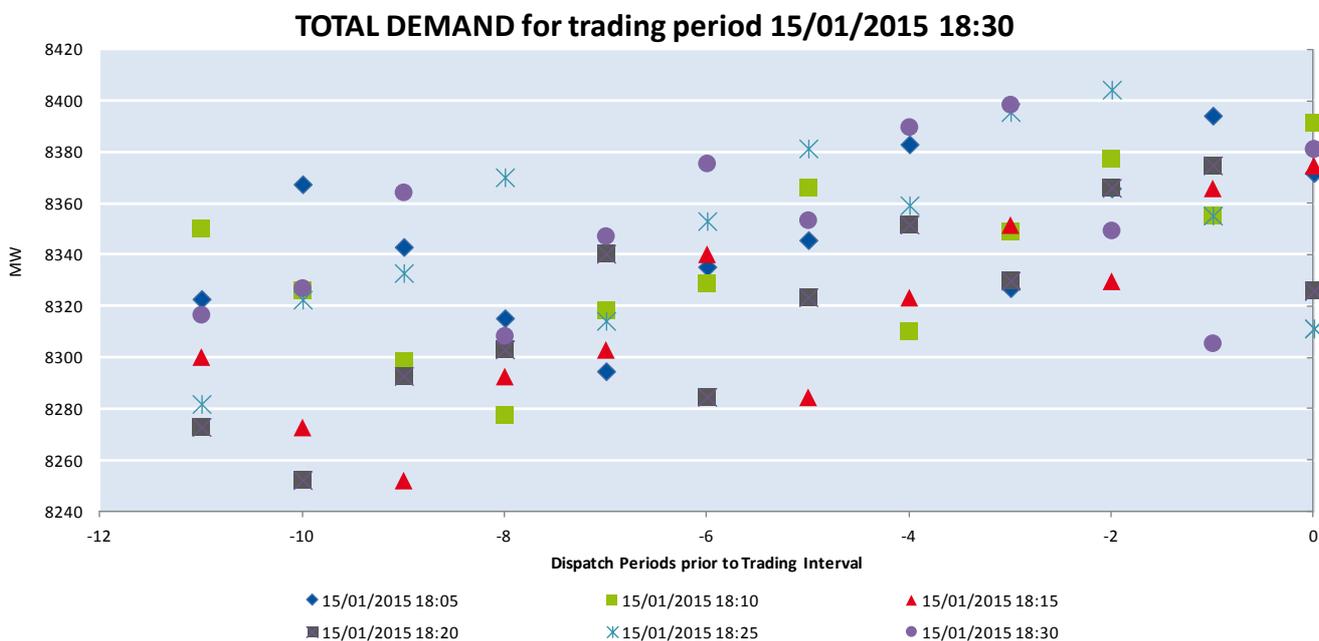
RRP for trading period 15/01/2015 18:00																		
RRP	Actual	4:40 PM	4:45 PM	4:50 PM	4:55 PM	5:00 PM	5:05 PM	5:10 PM	5:15 PM	5:20 PM	5:25 PM	5:30 PM	5:35 PM	5:40 PM	5:45 PM	5:50 PM	5:55 PM	6:00 PM
15/01/2015 17:35	\$12,950	\$96	\$96	\$96	\$96	\$96	\$296	\$53	\$95	\$95	\$37	\$37	\$12,950					
15/01/2015 17:40	\$12,950		\$96	\$96	\$296	\$296	\$12,950	\$95	\$95	\$95	\$37	\$37	\$12,950	\$12,950				
15/01/2015 17:45	\$12,950			\$96	\$296	\$296	\$12,950	\$95	\$95	\$95	\$37	\$37	\$43	\$12,950	\$12,950			
15/01/2015 17:50	\$37				\$12,950	\$296	\$12,950	\$95	\$96	\$95	\$12,950	\$38	\$12,950	\$12,950	\$12,950	\$37		
15/01/2015 17:55	\$37					\$296	\$12,950	\$95	\$95	\$95	\$41	\$37	\$12,950	\$12,950	\$38	\$36	\$37	
15/01/2015 18:00	\$36						\$12,950	\$95	\$95	\$95	\$37	\$37	\$46	\$12,950	\$38	\$36	\$36	\$36

The interconnector limits (and flows) are shown in aggregate by the term 'Netinterchange' as published in the dispatch and Predispatch tables. The Netinterchange coupled with interconnector limits are a function of the supply, demand and interconnector availability and way for traders to interpret changes in the supply-demand balance reasonably easily in the five minute forecast. As can be seen, there is significant variability in the Netinterchange as suppliers change their offers.

NetInterchange for trading period 15/01/2015 18:00



The following figure presents the P5min Predispatch data for a single half hour trading interval ending 18:30. This P5min Predispatch schedule was presenting demand at approximately 100MW higher than the Predispatch case at the start of the dispatch interval. The final Predispatch demand value was 150MW lower than actual.



Throughout the afternoon, 15:34 to 17:04, Predispatch forecast high prices for Trading Interval 18:30. P5min Predispatch forecast was forecasting low to moderate prices less than half an hour ahead,

Rebidding to higher price and lower prices bands occurred and dispatch prices moderated throughout the interval as dispatch demand reduced, until further rebidding to higher price bands and a sharp increase in forecast demand resulted in a high price for the last dispatch interval.

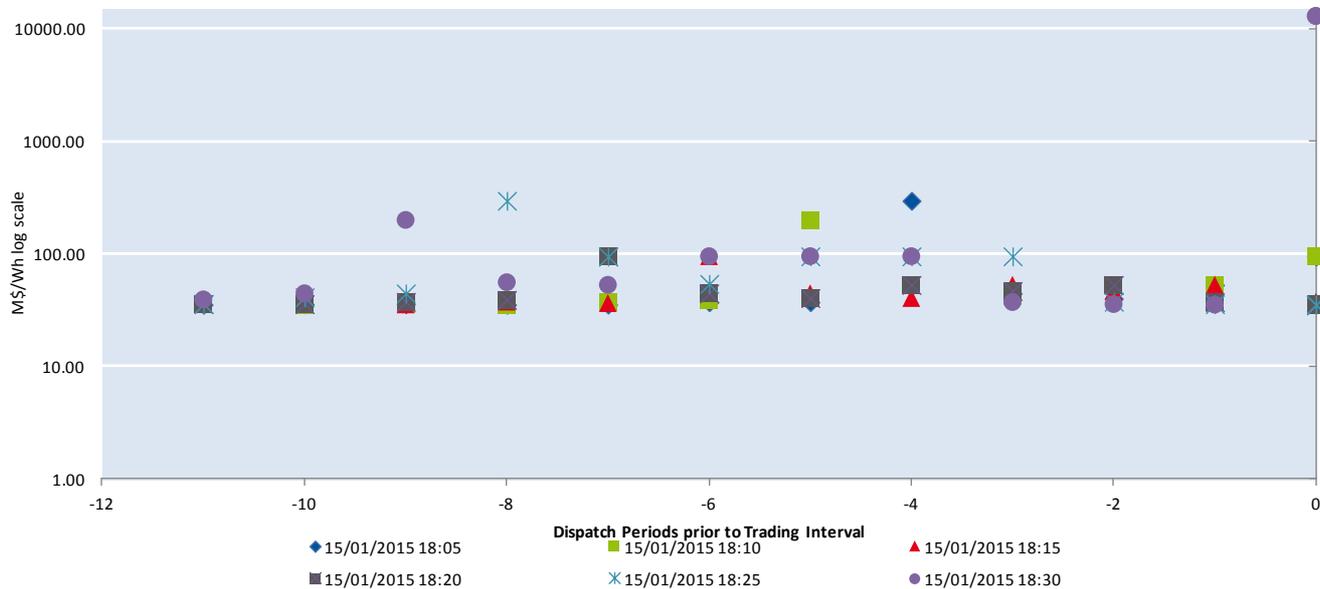
The participants rebidding volumes to higher price bands close to dispatch were Millmerran and CS Energy and to lower price bands close to dispatch was ERM Power, although this followed significant rebidding throughout the afternoon.

The P5min Predispatch forecast constantly had the base point revised during this half hour as the NEM dispatch engine accommodates the variability in demand from that forecast over the five minutes, non-conformance and changes in system frequency (please see earlier box discussing P5min Predispatch). However through the P5min Predispatch period the forecast did converge to a higher value than had been forecast an hour ahead.

The P5min forecast prices can be seen in the table and figure below.

RRP for trading period 15/01/2015 18:30																		
RRP	Actual	Run Datetime																
		5:10 PM	5:15 PM	5:20 PM	5:25 PM	5:30 PM	5:35 PM	5:40 PM	5:45 PM	5:50 PM	5:55 PM	6:00 PM	6:05 PM	6:10 PM	6:15 PM	6:20 PM	6:25 PM	6:30 PM
15/01/2015 18:05	\$95	\$35	\$36	\$36	\$35	\$35	\$37	\$37	\$296	\$44	\$40	\$53	\$95					
15/01/2015 18:10	\$95		\$36	\$35	\$36	\$35	\$37	\$39	\$199	\$53	\$42	\$53	\$53	\$95				
15/01/2015 18:15	\$37			\$36	\$36	\$35	\$37	\$36	\$95	\$44	\$40	\$53	\$47	\$53	\$37			
15/01/2015 18:20	\$35				\$36	\$36	\$37	\$39	\$95	\$44	\$40	\$53	\$47	\$53	\$37	\$35		
15/01/2015 18:25	\$35					\$36	\$41	\$44	\$296	\$94	\$54	\$95	\$95	\$95	\$38	\$36	\$35	
15/01/2015 18:30	\$12,950						\$39	\$44	\$199	\$56	\$53	\$95	\$95	\$95	\$37	\$36	\$35	\$12,950

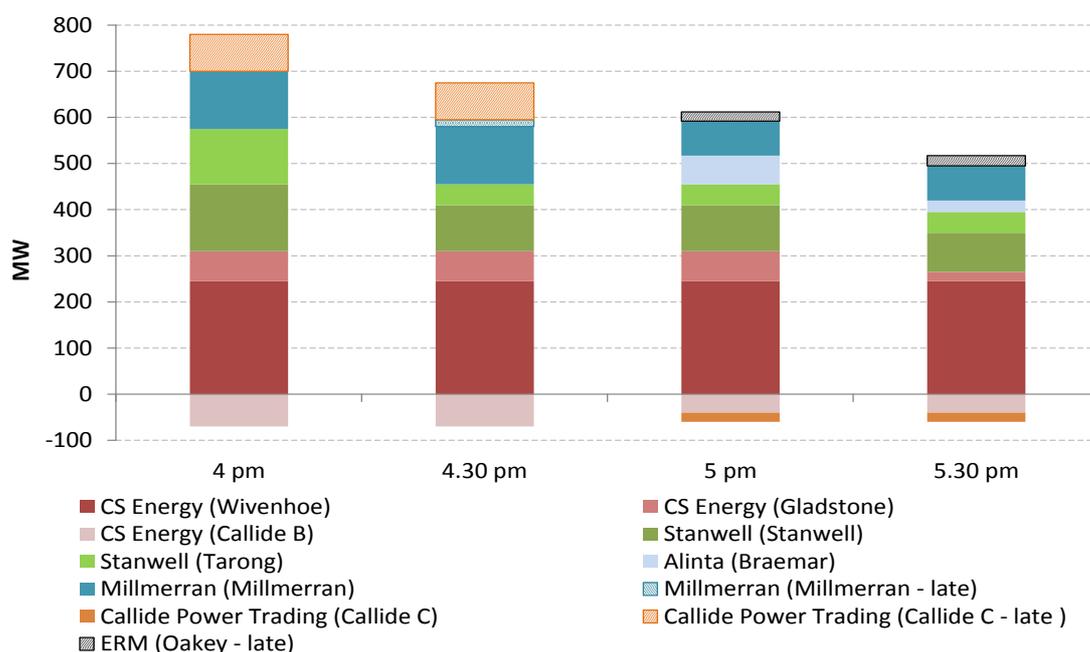
RRP for trading period 15/01/2015 18:30



3. 18th January 2015

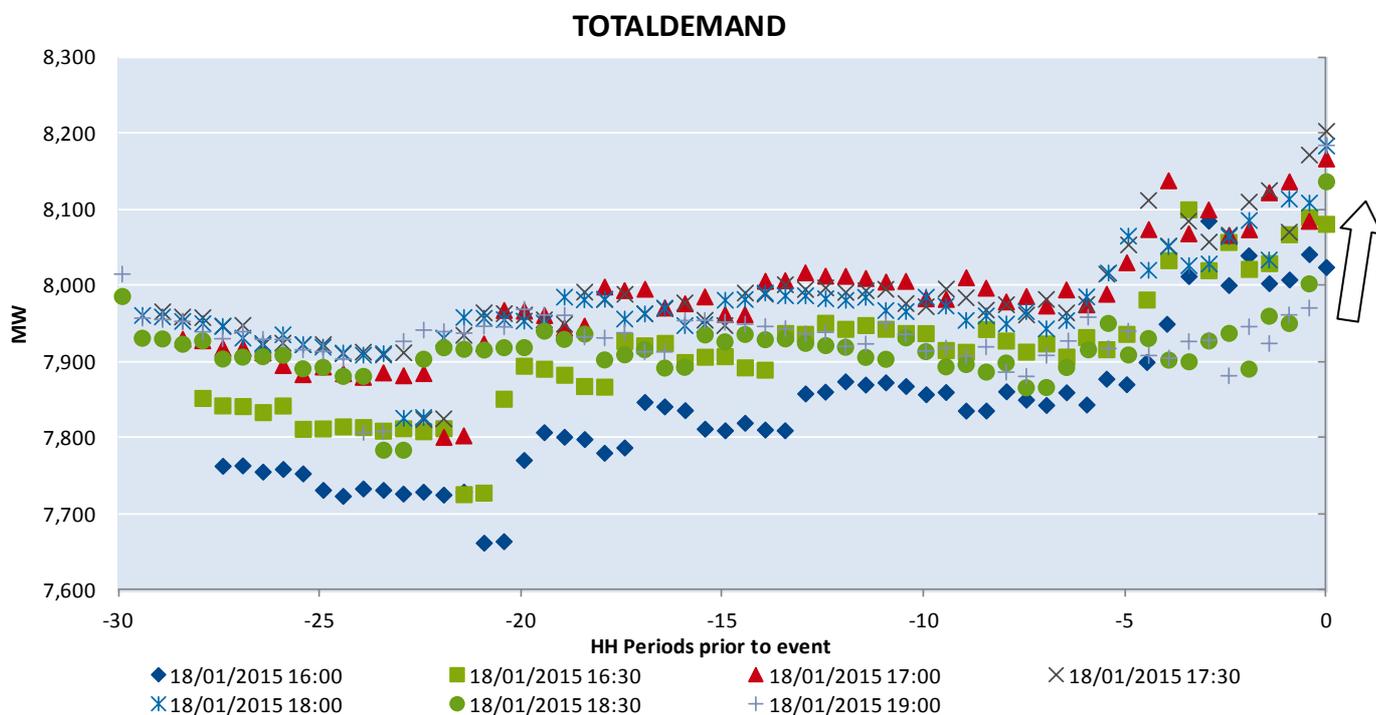
On the 18th January the demand was lower than Predispatch, until a significant jump in Predispatch demand two hours or so ahead of dispatch. There was a discrepancy of the forecast over 100MW only a half hour ahead of dispatch. This can be associated with difficulties forecasting demand, but also commercial and industrial demand side participation, which was successful in moderating prices.

The AER explains that ERM Power, operating Oakey, which is a gas-fired peaking plant made rebids within the trading intervals for 16:30 to 17:30.

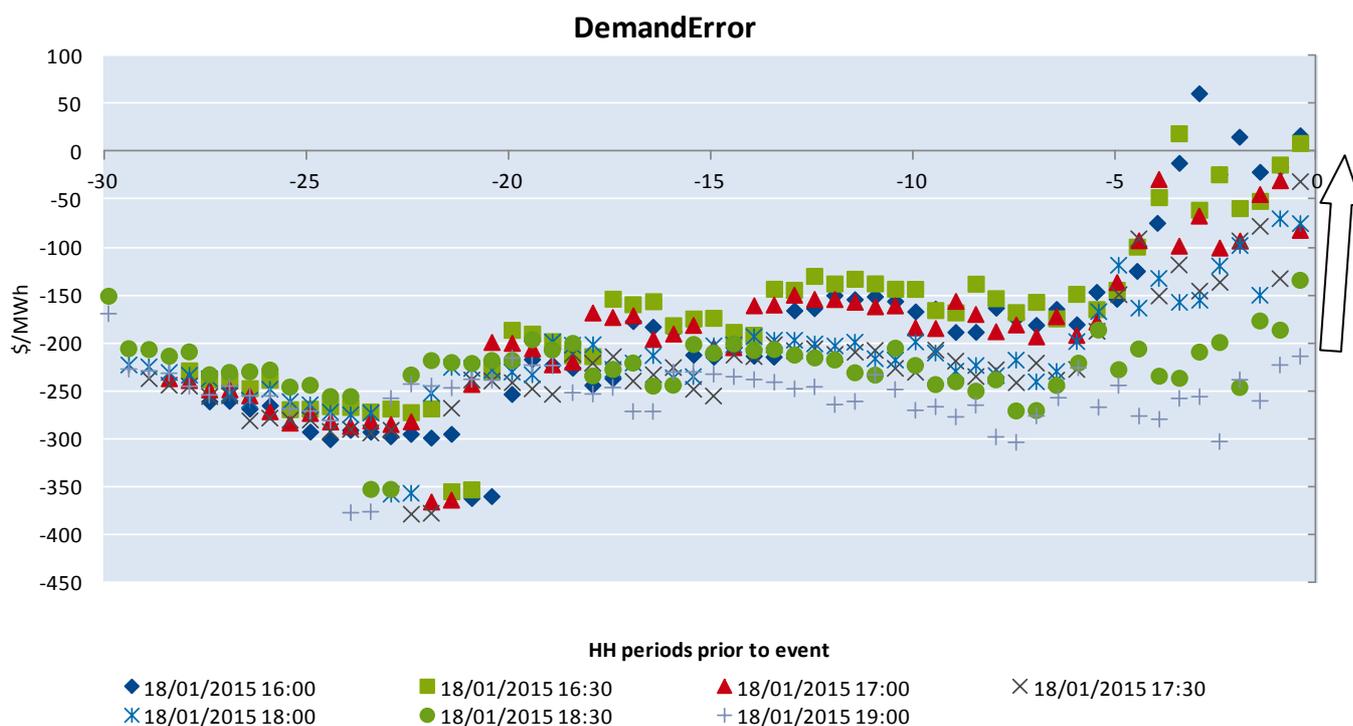


Source: AER, Prices above \$5000/MWh - 18 January 2015 (Qld)

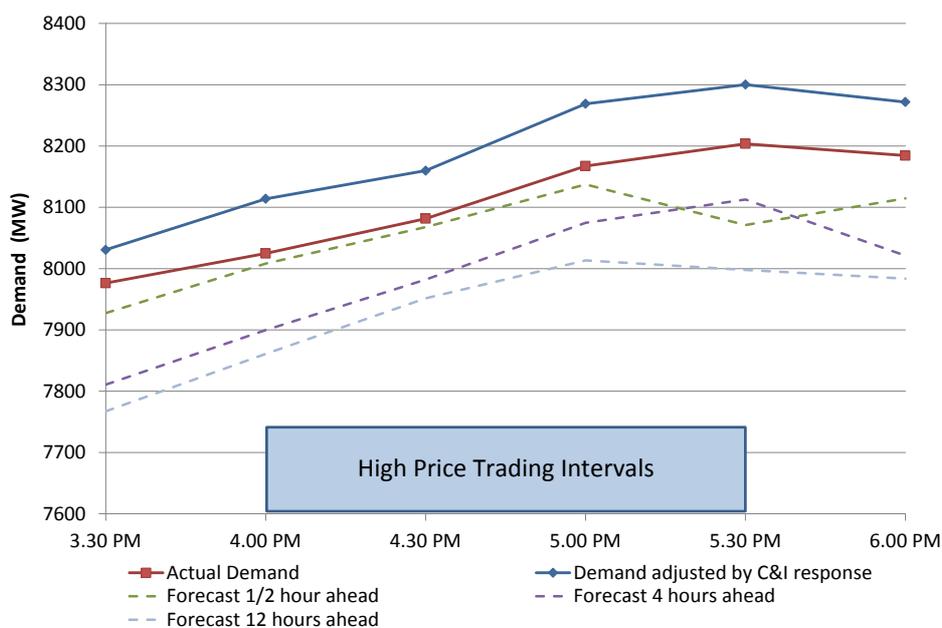
The following figures indicate how the data changed as time reduced to the auction closing. What is clear from the figures is that early Predispatch data did not provide the best indicator of dispatch, rather the information improved as the day continued.



In addition to the 'Total Demand' we have plotted the difference between the actual demand and the Predispatch forecast as "Demand Error". This is shown in the figure below. In this example there is evidence of the information improving close to dispatch. The error reduces to zero at dispatch.

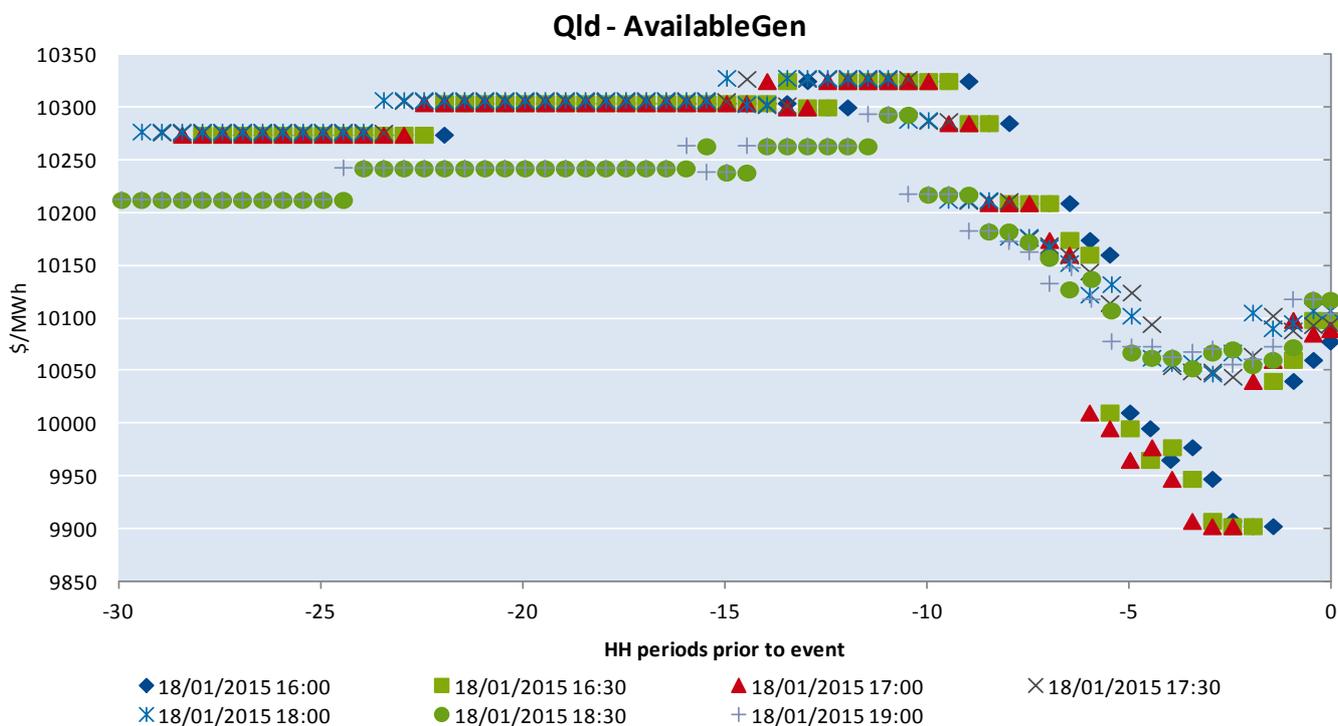


The following figure is taken from the AER report. The AER notes the under forecasting of demand by AEMO and how the forecast would have had a greater error had it not been for demand side participation that served to reduce demand closer to that earlier forecast. The forecast half hour ahead (data point 2 half hours before event, in the figure above) has the greatest discrepancy.



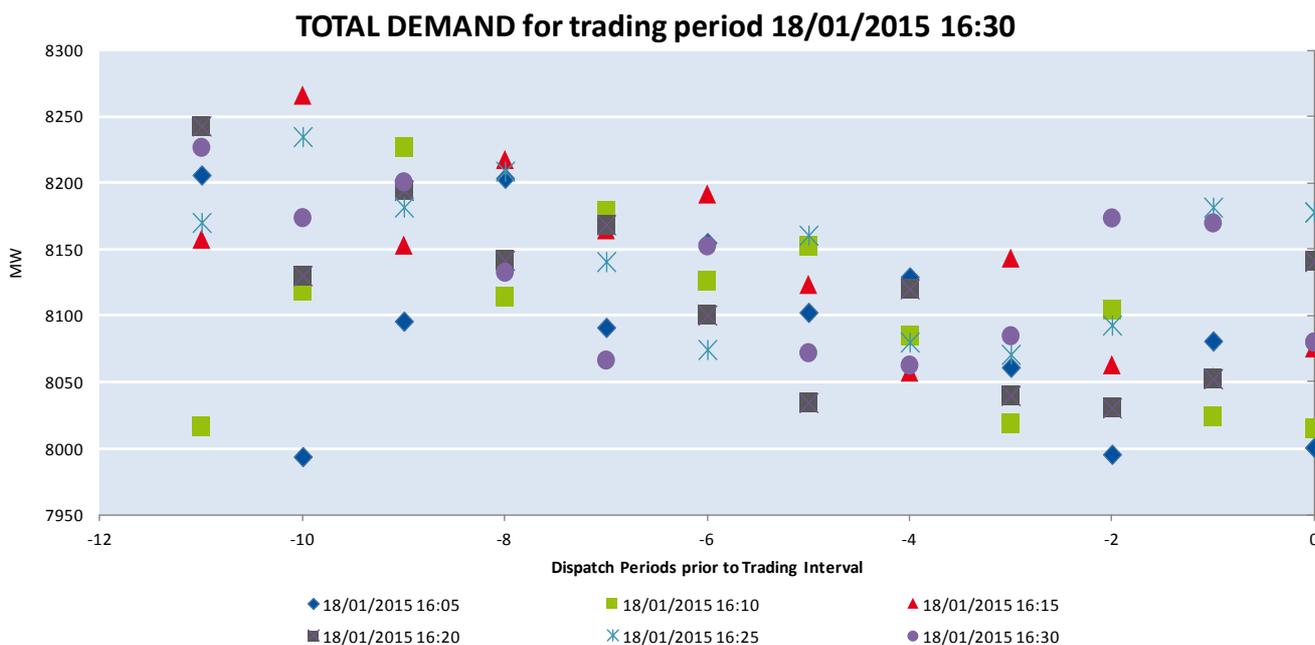
Source: AER, Prices above \$5000/MWh - 18 January 2015 (Qld)

The following chart shows the available generation for Queensland for the period. As time reduces available generation reduces, with changes occurring within two hours ahead of dispatch.



The following figure shows the P5min Predispatch data for trading interval 16:30. The data appears to show a general decrease in demand converging to actual demand.

The P5min Predispatch shows how demand forecast changed, with values tending down, somewhat consistent with the P5min Predispatch price forecast in the table below.

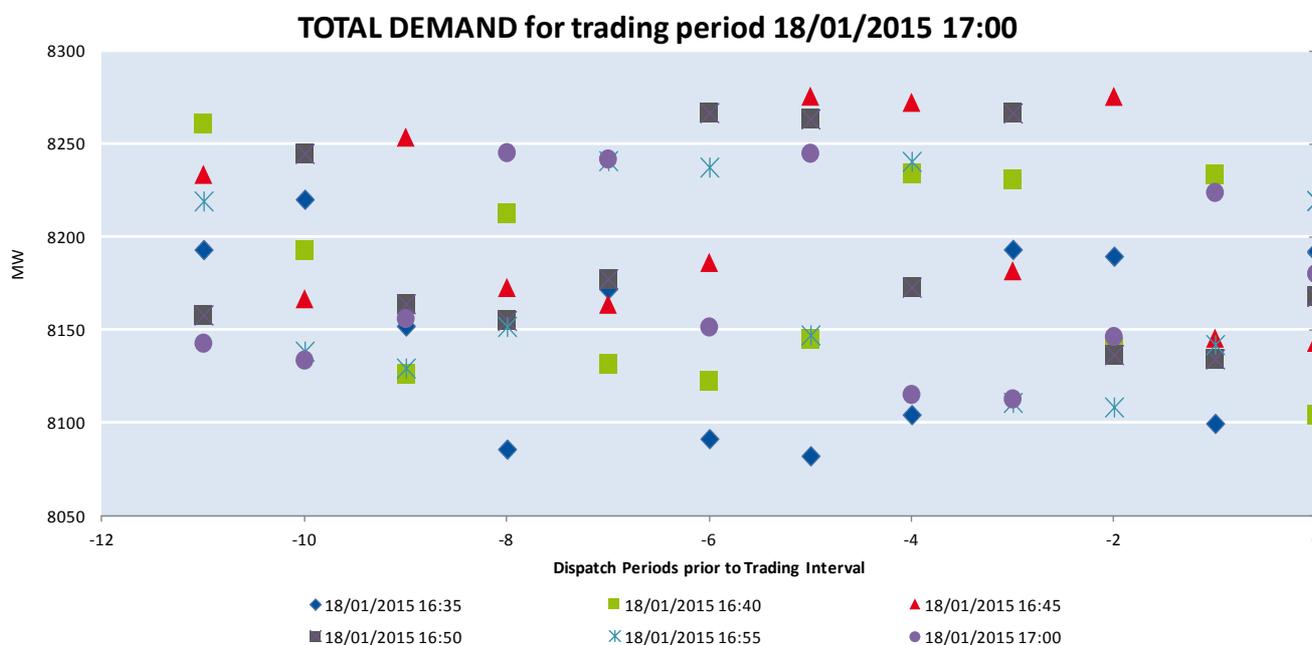


It is however notable those observations 16:20 and 16:25 were higher than forecast five minutes ahead had higher pricing than P5min Predispach (as had 16:05). The first, 16:20 solicited a rebid which coupled with increased demand resulted in a price of \$12,950/MWh which was not forecast in the P5min Predispach schedule nor the Predispach schedule. The 16:30 dispatch period was not subject to any further rebidding and only cleared at \$43/MWh after being forecast at \$1,501/MWh only five minutes before. The difference between the dispatch intervals cannot be put down to rebidding; instead being an artefact of the AEMO process for calculating demand for dispatch (discussed in earlier text boxes).

The evidence for the period 16:30 indicates the rebidding close to dispatch was motivated by changes close to dispatch, rather than to mislead other market participants.

RRP for trading period 18/01/2015 16:30																		
RRP	Actual	Run_Datetime																
	3:10 PM	3:15 PM	3:20 PM	3:25 PM	3:30 PM	3:35 PM	3:40 PM	3:45 PM	3:50 PM	3:55 PM	4:00 PM	4:05 PM	4:10 PM	4:15 PM	4:20 PM	4:25 PM	4:30 PM	
18/01/2015 16:05	\$199	\$302	\$36	\$47	\$302	\$150	\$302	\$199	\$200	\$37	\$38	\$41	\$42					
18/01/2015 16:10	\$39		\$36	\$36	\$200	\$36	\$199	\$150	\$38	\$37	\$36	\$37	\$40	\$39				
18/01/2015 16:15	\$41			\$36	\$199	\$36	\$38	\$38	\$37	\$37	\$36	\$37	\$39	\$37	\$41			
18/01/2015 16:20	\$302				\$37	\$35	\$38	\$38	\$37	\$36	\$36	\$38	\$38	\$41	\$150			
18/01/2015 16:25	\$12,950					\$36	\$41	\$150	\$37	\$37	\$36	\$37	\$41	\$38	\$41	\$300	\$302	
18/01/2015 16:30	\$43						\$41	\$150	\$37	\$36	\$36	\$37	\$41	\$38	\$41	\$200	\$1,501	\$43

The following figure shows the P5min Predispach data for trading interval 17:00. The data does not show any clear convergence to actual demand. The P5min Predispach shows how demand forecast changed, with values tending down just before dispatch, somewhat consistent with the P5min Predispach price forecast in the table. The P5min Predispach an hour and half hour ahead was closer to the actual demand 8,168MW, than the last run of Predispach at 16:34 of 8,086MW.

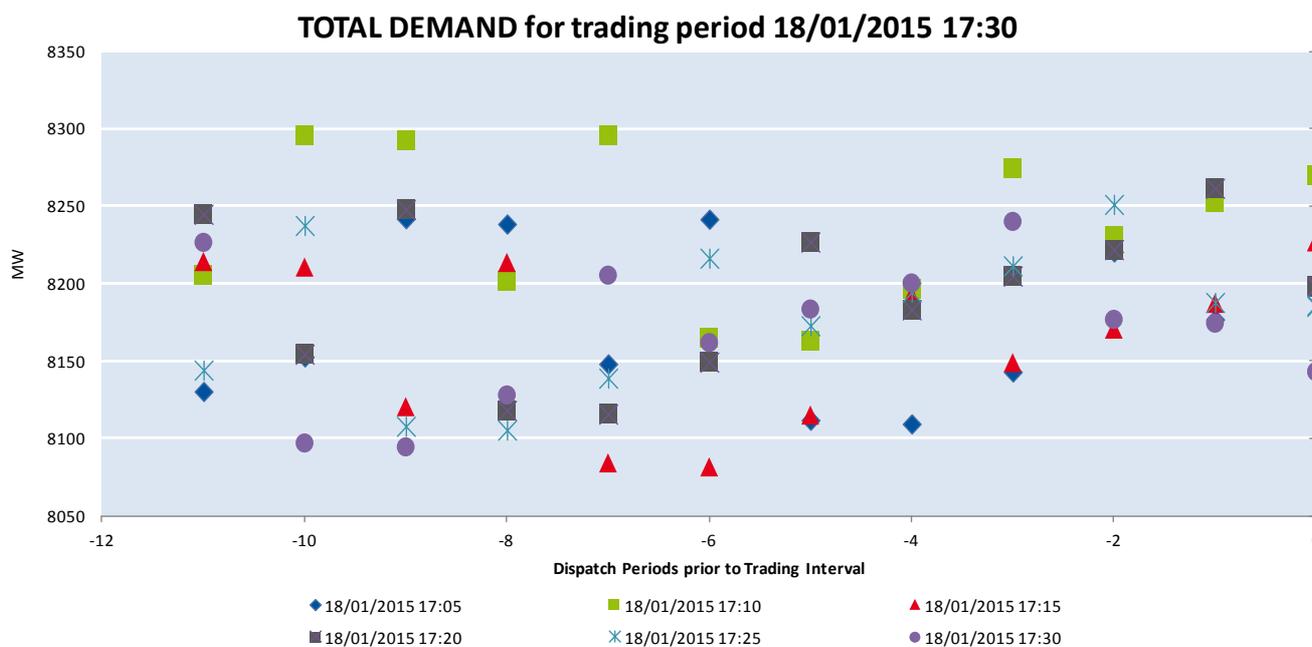


The following figure shows the P5min Predispach price data for trading interval 17:00. Rebidding of volumes to higher price bands close to dispatch, by Braemar (Arrow) and Oakey (ERM Power) served to increase the price, which alternated between \$302/MWh and \$12,950/MWh. The evidence, shows there was an increase in forecast demand, plus changes in short term forecasts of demand and price.

RRP for trading period 18/01/2015 17:00																		
RRP	Actual	Run_Datetime																
		3:40 PM	3:45 PM	3:50 PM	3:55 PM	4:00 PM	4:05 PM	4:10 PM	4:15 PM	4:20 PM	4:25 PM	4:30 PM	4:35 PM	4:40 PM	4:45 PM	4:50 PM	4:55 PM	5:00 PM
18/01/2015 16:35	\$12,950	\$150	\$37	\$36	\$36	\$37	\$40	\$38	\$41	\$300	\$1,501	\$200	\$12,950	\$302	\$12,950	\$199		
18/01/2015 16:40	\$302		\$150	\$37	\$37	\$38	\$41	\$39	\$150	\$302	\$12,950	\$302	\$12,950	\$199				
18/01/2015 16:45	\$12,950			\$37	\$39	\$40	\$300	\$199	\$300	\$12,950	\$12,950	\$1,501	\$12,950	\$302	\$302			
18/01/2015 16:50	\$302				\$37	\$39	\$200	\$199	\$200	\$1,501	\$12,950	\$302	\$12,950	\$300	\$300	\$300		
18/01/2015 16:55	\$12,950					\$39	\$150	\$41	\$150	\$1,501	\$12,950	\$302	\$12,950	\$199	\$300	\$300	\$12,950	
18/01/2015 17:00	\$302						\$150	\$42	\$150	\$1,501	\$12,950	\$302	\$12,950	\$199	\$300	\$300	\$12,950	\$300

The following figure shows the P5min Predispatch data for trading interval 17:30. The data does not show any clear convergence to actual demand. The P5min Predispatch shows how demand forecast changed, with values tending down just before dispatch, somewhat consistent with the P5min Predispatch price forecast in the table. The P5min Predispatch an hour ahead was closer (8,194MW) to the actual demand 8,204MW, than the last run of Predispatch at 17:04 of 8,173MW and the previous forecast at 16:34 of 8,071MW.

The P5min data does show an increase in demand through the period for a number of dispatch intervals.



The error between P5min demand and dispatch demand reduced with time. The forecast information did improve.

The moderately high price was not forecast in Predispatch or P5min Predispatch, but then again, nor was the higher demand. Rebidding occurred close to dispatch with approximately 150MW rebid to the price cap just prior to, or within, the trading interval by Stanwell and ERM Power.

RRP for trading period 18/01/2015 17:30																		
RRP	Actual	Run_Datetime																
		4:10 PM	4:15 PM	4:20 PM	4:25 PM	4:30 PM	4:35 PM	4:40 PM	4:45 PM	4:50 PM	4:55 PM	5:00 PM	5:05 PM	5:10 PM	5:15 PM	5:20 PM	5:25 PM	5:30 PM
18/01/2015 17:05	\$302	\$36	\$36	\$36	\$37	\$36	\$37	\$36	\$36	\$37	\$37	\$47	\$199					
18/01/2015 17:10	\$1,501		\$37	\$37	\$41	\$37	\$150	\$37	\$37	\$37	\$150	\$300	\$302	\$1,501				
18/01/2015 17:15	\$1,501			\$36	\$37	\$36	\$37	\$36	\$36	\$36	\$37	\$37	\$41	\$43	\$199			
18/01/2015 17:20	\$200				\$37	\$37	\$37	\$36	\$36	\$37	\$37	\$150	\$200	\$300	\$302	\$41		
18/01/2015 17:25	\$199					\$37	\$37	\$36	\$36	\$36	\$37	\$150	\$199	\$300	\$300	\$37	\$41	
18/01/2015 17:30	\$37						\$37	\$36	\$36	\$36	\$37	\$41	\$150	\$200	\$200	\$37	\$41	\$37

4. 5th March 2015

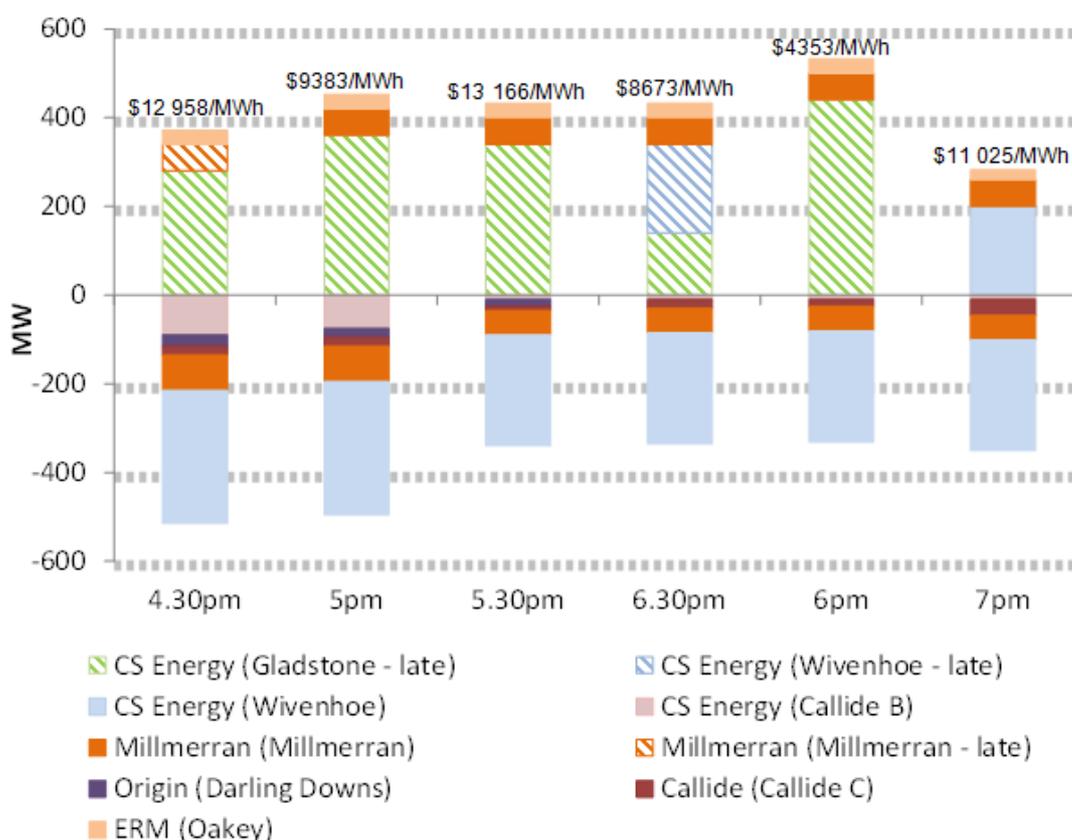
On the 5th March the AER highlight volumes rebid to higher prices as being significant. The price cleared at levels exceeding \$8,500/MWh, bar one interval where it dropped to \$4,353/MWh, over the period 16:30 to 19:00.

3.1.1 Rebidding

Appendix A contains all significant rebids that contributed to the high prices. Figure 1 graphically summarises significant rebids made within 12 hours of dispatch and which were effective during the high price period.

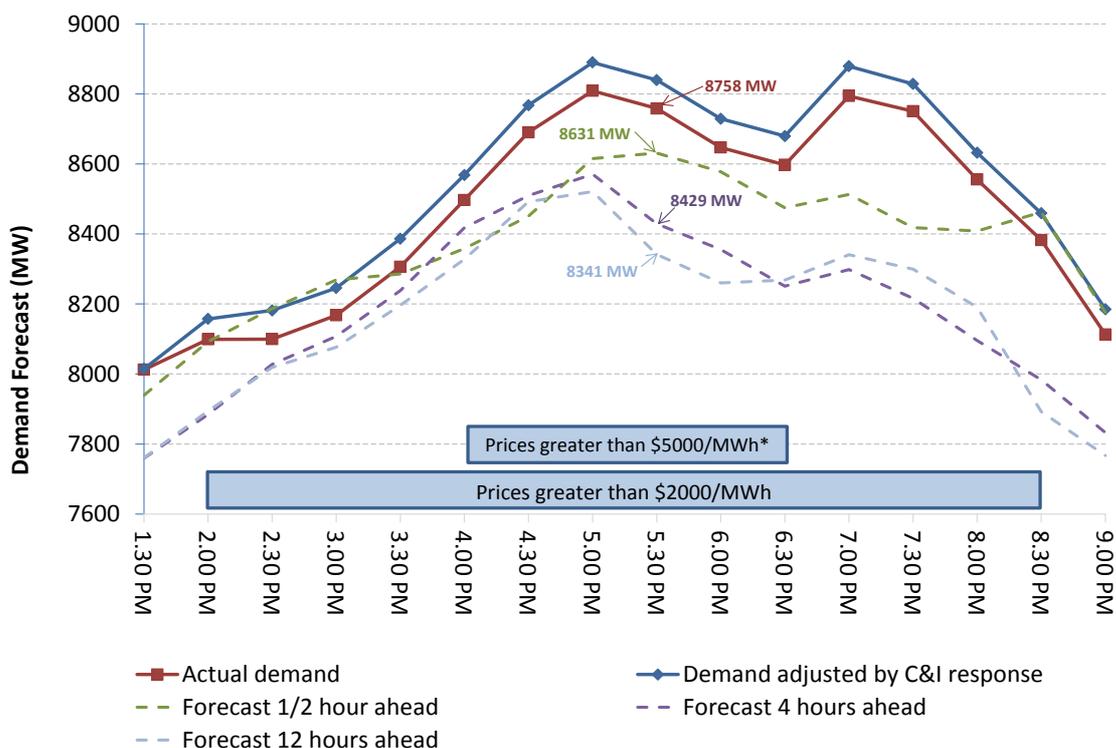
Areas above the horizontal axis represent capacity rebid from low prices to high prices for each trading interval, by participant and station. Areas below the horizontal axis represent capacity withdrawn, for each trading interval. Hatched areas represent capacity rebids (some shortly before the trading interval i.e. late) becoming effective within the trading interval. The spot price in each interval is shown above each column.

Figure 1: Rebidding to high prices and capacity withdrawn, by trading interval



Source: AER, Prices above \$5000/MWh - 5 March 2015 (Qld)

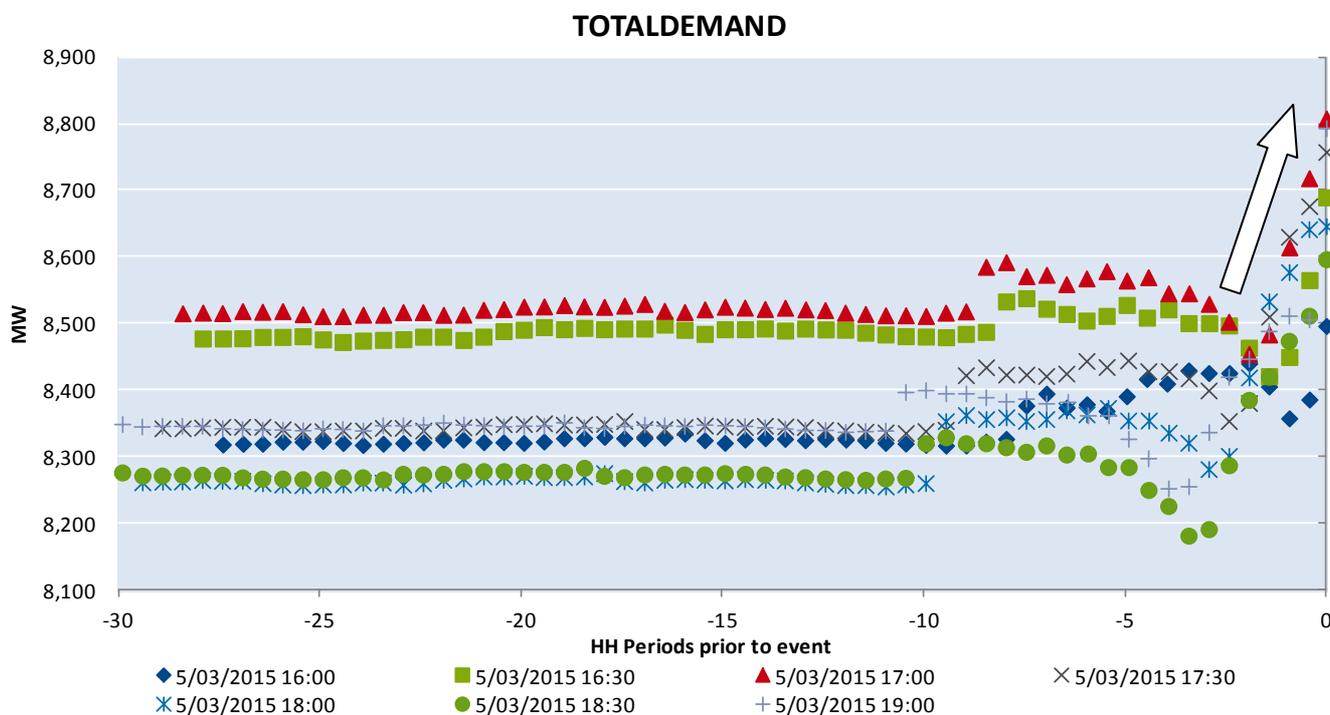
The AER notes, if not accounting for commercial demand side participation (which was not forecast) the half hour ahead Predispach demand forecast would have been worse. The demand forecasts in Predispach were up to 400MW lower than dispatch at two hours ahead. The figure below shows how Predispach included a reduction in demand and then an increase in demand.



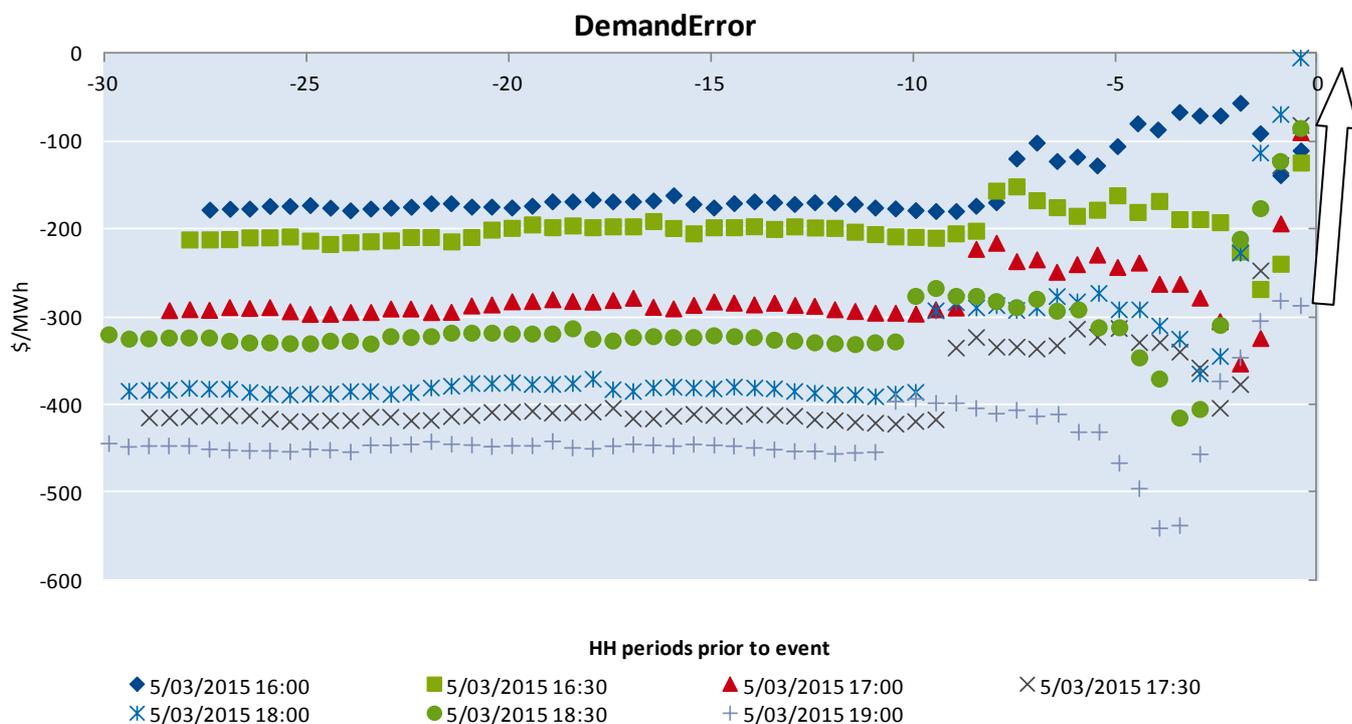
Source: AER, Prices above \$5000/MWh - 5 March 2015 (Qld)

* Note: the spot price at 6.30 pm was \$4353/MWh

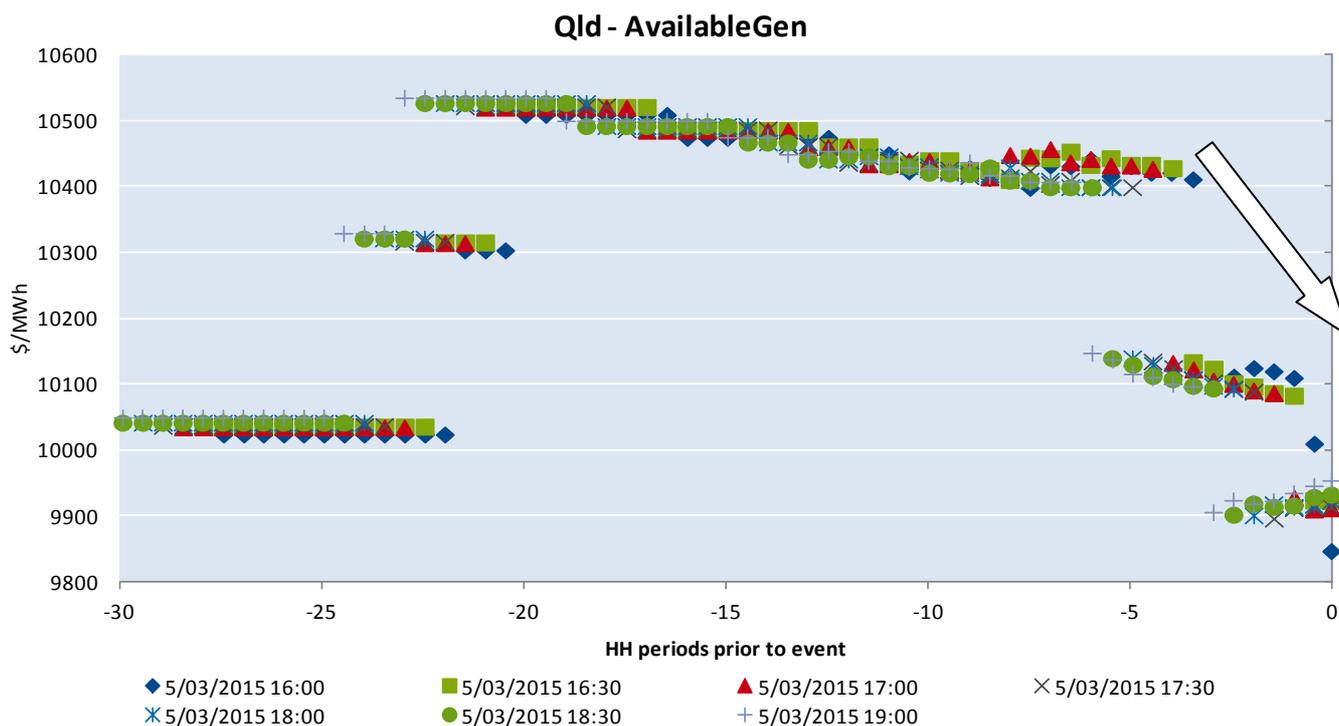
We have plotted the Predispach forecast for the period on the figure below. The Predispach forecasts were increased over the two hours remaining before dispatch.



The error between the actual demand and the Predispach forecast were significant and worsened through the evening.

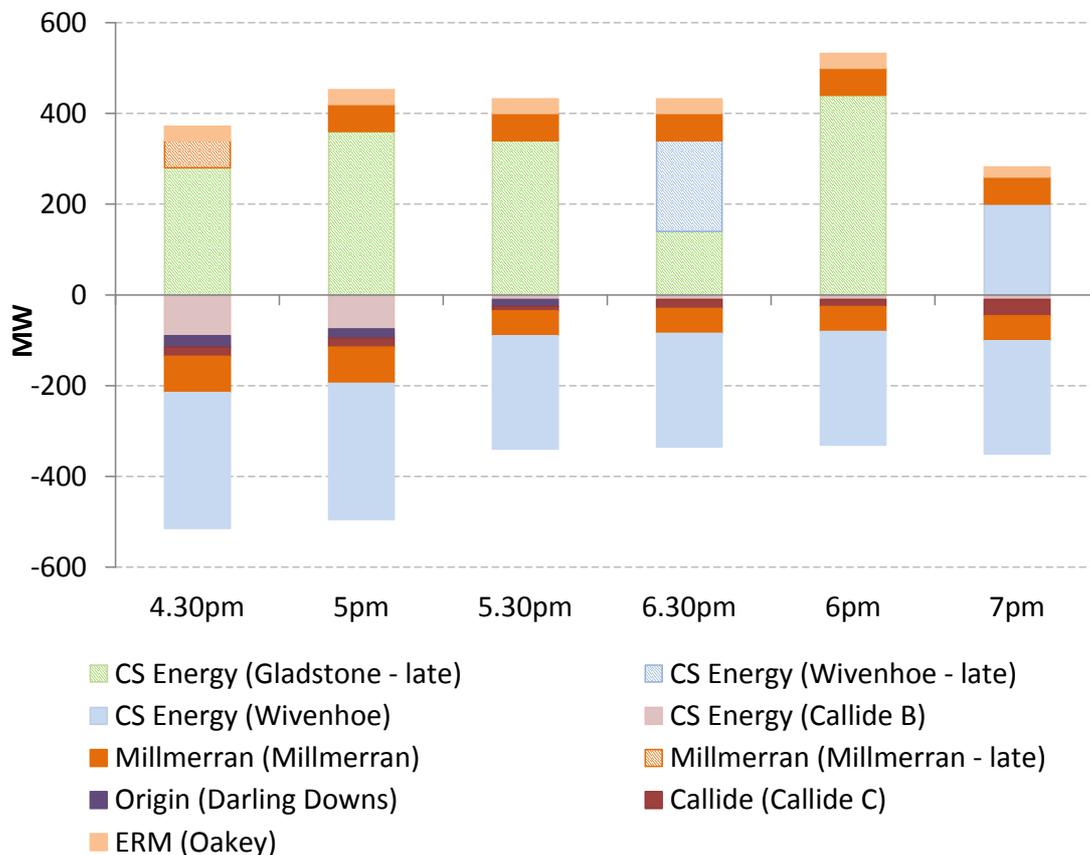


There were significant cumulative reductions in available generation leading up to the higher priced periods, which would have caused disruption to participants' supply curves. The AER stated that these reductions were not the main reason for the higher prices, which were more likely the result of high demand. However outages can contribute to the level of rebidding. This is because participants would have had to change their offer curves across their portfolios to account for the loss of availability.



The AER highlights significant 'late rebidding', which it classifies as being close to dispatch. The rebidding is shown in the figure below reproduced directly from the AER's report.

Rebidding to high prices and capacity withdrawn, by trading interval

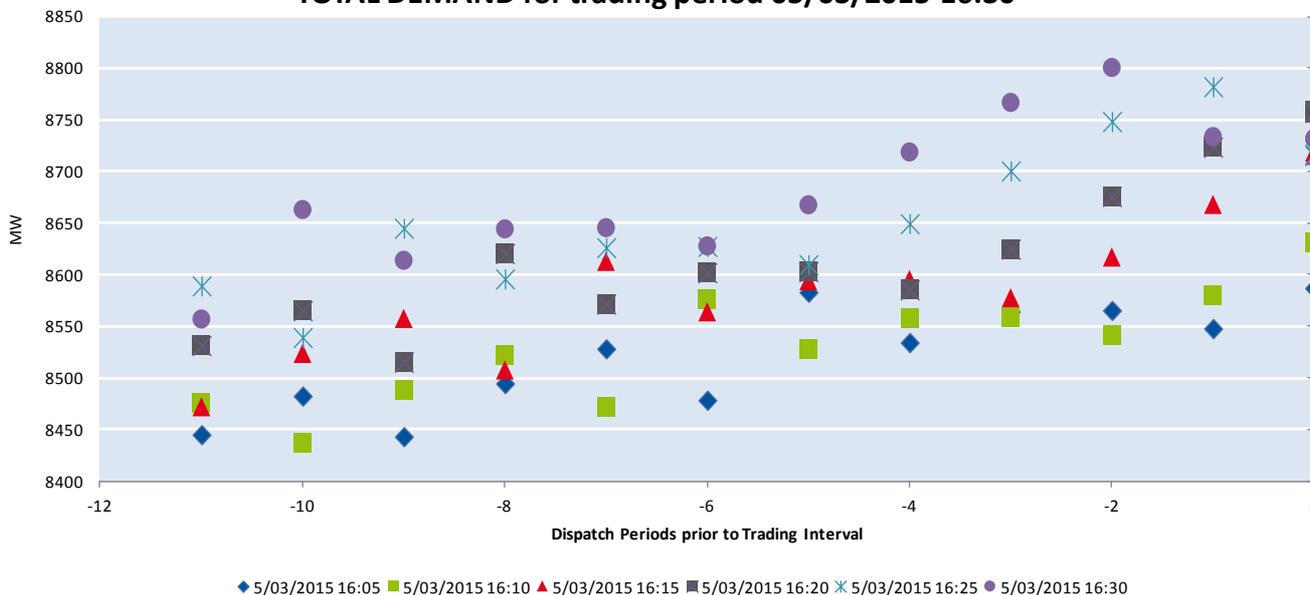


Source: AER, Prices above \$5000/MWh - 5 March 2015 (Qld)

Participants were rebidding to refine their positions, with this including utilisation of price bands below the market price cap. The opportunity to do this may have been provided by the higher than expected demand.

The following figure shows the P5min Predispach data for trading interval 16:30. The data does show a clear convergence to actual demand. The P5min Predispach shows how demand forecast changed, with values tending up consistent with the P5min Predispach price forecast in the table below. The P5min Predispach an hour ahead was closer (8,511MW) to the actual demand 8,690MW, than the last run of Predispach at 15:34 of 8,451MW and the previous forecast at 16:04 of 8,566MW.

TOTAL DEMAND for trading period 05/03/2015 16:30

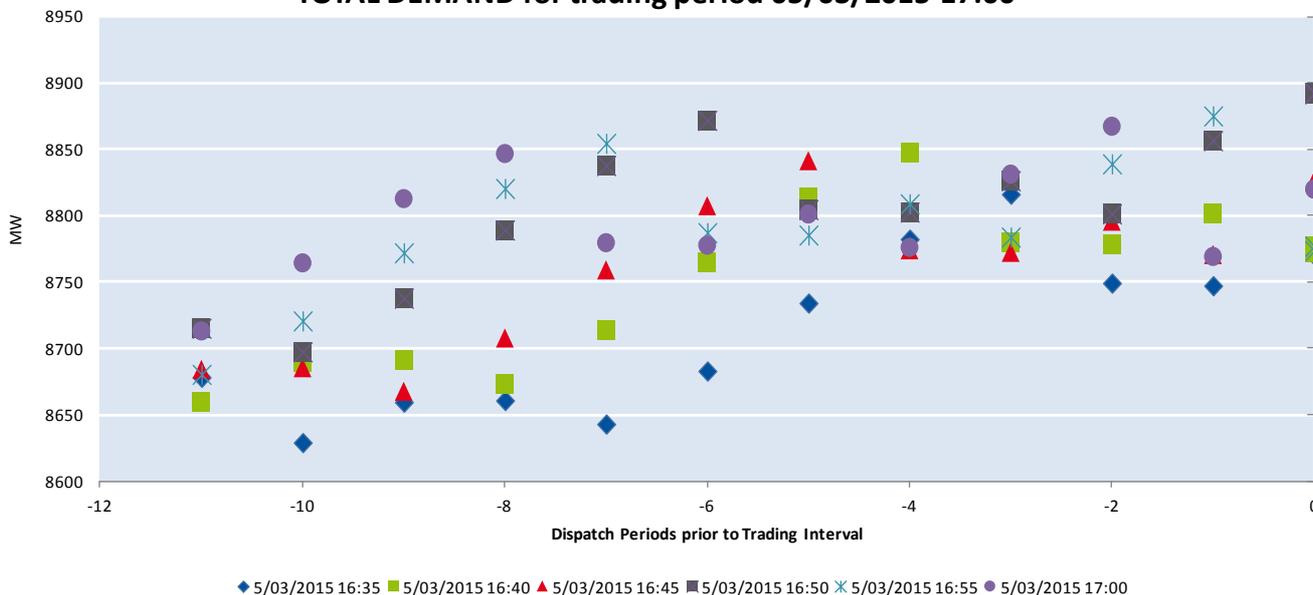


The high prices were not forecast in Predispatch or P5min Predispatch, but then again, nor was the higher demand. Rebidding occurred close to dispatch with approximately 362MW rebid to prices near the price cap just prior to, or within, the trading interval by ERM Power, CS Energy and Millmerran.

RRP for trading period 05/03/2015 16:30																		
RRP	Actual	Run_Datetime																
		3:10 PM	3:15 PM	3:20 PM	3:25 PM	3:30 PM	3:35 PM	3:40 PM	3:45 PM	3:50 PM	3:55 PM	4:00 PM	4:05 PM	4:10 PM	4:15 PM	4:20 PM	4:25 PM	4:30 PM
5/03/2015 16:05	\$12,949	\$55	\$55	\$55	\$55	\$55	\$55	\$458	\$55	\$302	\$55	\$55	\$12,949					
5/03/2015 16:10	\$12,949		\$55	\$55	\$55	\$55	\$55	\$302	\$55	\$55	\$55	\$55	\$302	\$12,949				
5/03/2015 16:15	\$12,949			\$55	\$55	\$55	\$55	\$302	\$55	\$55	\$55	\$55	\$302	\$12,949	\$12,949			
5/03/2015 16:20	\$13,000				\$55	\$55	\$55	\$302	\$55	\$55	\$55	\$55	\$302	\$12,949	\$12,949	\$13,000		
5/03/2015 16:25	\$12,949					\$55	\$55	\$302	\$55	\$55	\$55	\$55	\$302	\$12,949	\$12,949	\$13,000	\$12,949	
5/03/2015 16:30	\$12,949						\$55	\$302	\$55	\$55	\$55	\$55	\$302	\$12,949	\$13,000	\$13,000	\$12,949	\$12,949

The following figure shows the P5min Predispatch data for trading interval 17:00. The data does show a clear convergence to actual demand over the first half hour of the forecast and then a stabilisation of the forecast. The P5min Predispatch shows how demand forecast changed, with values tending up consistent with the P5min Predispatch price forecast in the table below. The P5min Predispatch an hour ahead of 8,688MW was lower than the actual demand 8,808MW, as was the last run of Predispatch at 16:34 of 8,719MW and the previous forecast at 16:04 of 8,615MW.

TOTAL DEMAND for trading period 05/03/2015 17:00

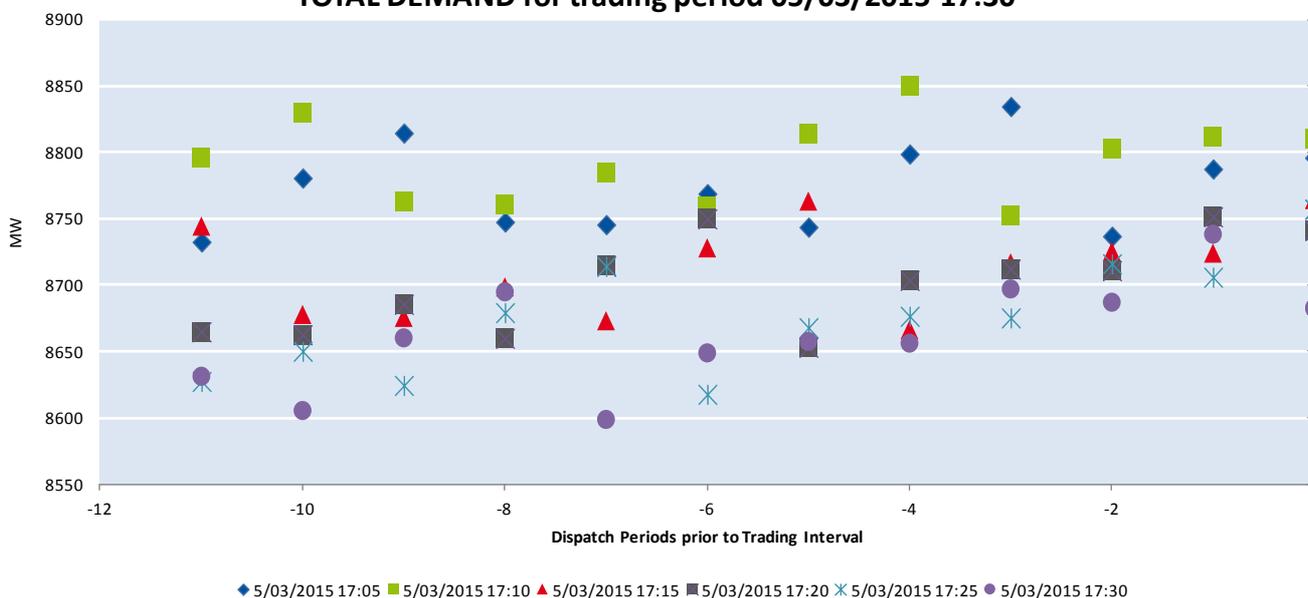


The high prices were not forecast in Predispatch, but were in P5min Predispatch (just not as high as turned out), but then again, nor was the higher demand forecast in Predispatch. Rebidding occurred close to dispatch with approximately 360MW rebid to prices near the price cap just prior to, or within, the trading interval by CS Energy.

RRP for trading period 05/03/2015 17:00																		
RRP	Actual	Run Datetime																
		3:40 PM	3:45 PM	3:50 PM	3:55 PM	4:00 PM	4:05 PM	4:10 PM	4:15 PM	4:20 PM	4:25 PM	4:30 PM	4:35 PM	4:40 PM	4:45 PM	4:50 PM	4:55 PM	5:00 PM
5/03/2015 16:35	\$1,400	\$55	\$55	\$55	\$55	\$55	\$55	\$55	\$302	\$1,575	\$55	\$55	\$1,400					
5/03/2015 16:40	\$1,400		\$55	\$55	\$55	\$55	\$55	\$302	\$1,575	\$1,575	\$55	\$302	\$1,400	\$1,400				
5/03/2015 16:45	\$13,499			\$55	\$55	\$55	\$55	\$55	\$302	\$1,575	\$1,575	\$55	\$55	\$1,400	\$1,400	\$13,499		
5/03/2015 16:50	\$13,499				\$55	\$55	\$55	\$458	\$1,575	\$12,949	\$302	\$1,575	\$1,400	\$1,400	\$13,499	\$13,499		
5/03/2015 16:55	\$13,000					\$55	\$55	\$302	\$1,575	\$1,575	\$302	\$302	\$1,400	\$1,400	\$13,499	\$13,499	\$13,000	
5/03/2015 17:00	\$13,499						\$55	\$302	\$1,575	\$1,575	\$55	\$302	\$1,400	\$1,400	\$13,499	\$13,499	\$13,000	\$13,499

The following figure shows the P5min Predispatch data for trading interval 17:30. The data does show the P5min Predispatch was reasonably accurate. The P5min Predispatch shows how demand forecast changed, with values tending up consistent with the P5min Predispatch price forecast in the table below. The P5min Predispatch for each interval an hour ahead 8,699MW was lower than the actual demand 8,758MW, as was the last run of Predispatch at 17:04 of 8,677MW and the previous forecast at 16:34 of 8,631MW.

TOTAL DEMAND for trading period 05/03/2015 17:30



The high prices were not forecast in Predispatch nor were the higher demand values, however high prices were forecast in P5min Predispatch.

Rebidding occurred close to dispatch with approximately 340MW rebid to prices near the price cap just prior to, or within, the trading interval by CS Energy. The rebidding was attributed to a reduction in demand just prior to the trading interval. This followed rebidding prices to higher price bands by ERM Power, close to dispatch.

RRP for trading period 05/03/2015 17:30																	
RRP	Run_Datetime																
	Actual	4:10 PM	4:15 PM	4:20 PM	4:25 PM	4:30 PM	4:35 PM	4:40 PM	4:45 PM	4:50 PM	4:55 PM	5:00 PM	5:05 PM	5:10 PM	5:15 PM	5:20 PM	5:30 PM
5/03/2015 17:05	\$13,499	\$55	\$302	\$458	\$55	\$55	\$302	\$302	\$1,575	\$1,575	\$55	\$302	\$13,499				
5/03/2015 17:10	\$13,499		\$458	\$1,575	\$302	\$302	\$458	\$458	\$1,575	\$1,575	\$55	\$1,575	\$13,499	\$13,499			
5/03/2015 17:15	\$13,000			\$55	\$55	\$55	\$55	\$55	\$55	\$55	\$55	\$55	\$13,000	\$13,000	\$13,000		
5/03/2015 17:20	\$13,000				\$55	\$55	\$55	\$55	\$55	\$55	\$55	\$55	\$13,000	\$13,000	\$13,000	\$13,000	
5/03/2015 17:25	\$13,000					\$55	\$55	\$55	\$55	\$55	\$55	\$55	\$13,000	\$13,000	\$13,000	\$13,000	\$13,000
5/03/2015 17:30	\$13,000						\$55	\$55	\$55	\$55	\$55	\$55	\$13,000	\$55	\$13,000	\$13,000	\$13,000

Other periods

The previous analyses focus on instances where the price cleared at very high levels. On these days it is reasonable to expect participants to react to changing events as the auction nears completion. The continuation of high demand, lower availability and high prices contributed to circumstances whereby participants understood that they needed to compete and refine their positions. In such an environment, the ability to mislead a participant may be low and therefore there may be little motive from pursuing a strategy of misleading others by delaying a rebid until the last minute.

It is therefore worth investigating days where there have been isolated price spikes at lower demand levels. For this analysis, rather than relying on some of the AER reports, which are not available, we have chosen to use some commentary from AEMO, supplemented by Predispatch data used in the preceding analysis.

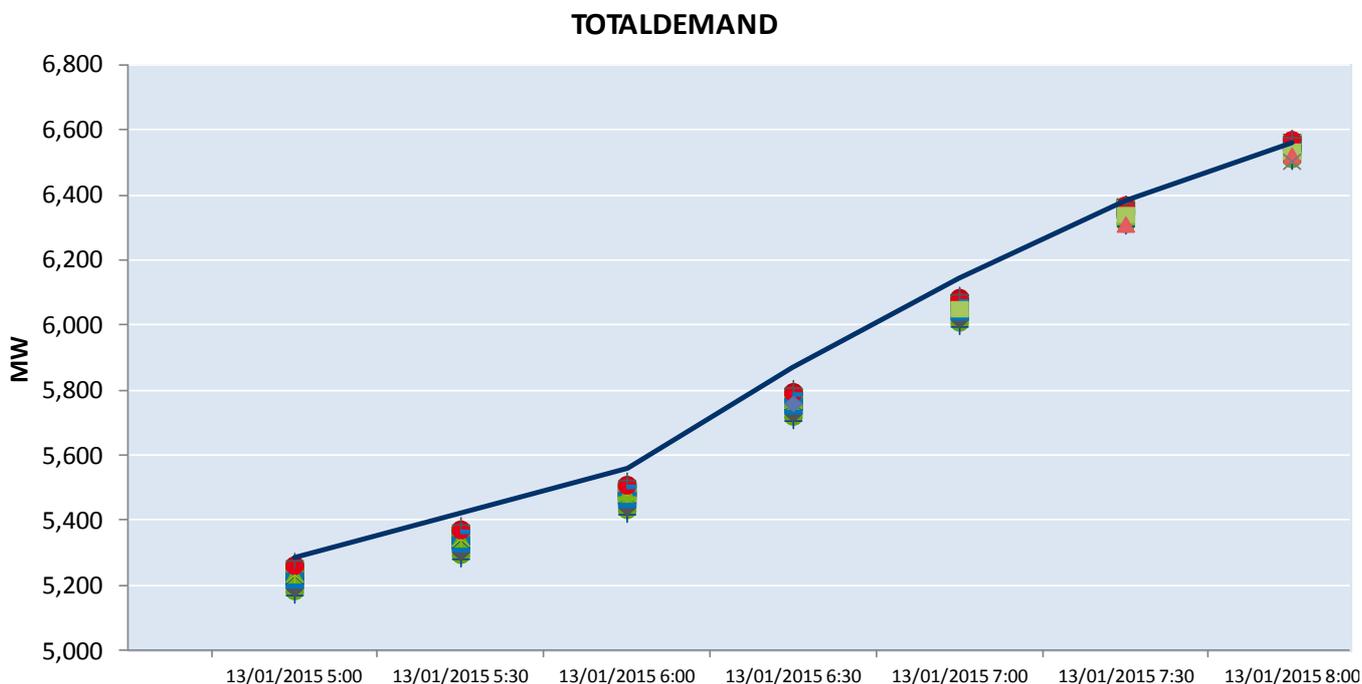
5. 13th and 14th January 2015

The 13th January is interesting because the 07:00 period included two prices at the cap, with the trading interval price being \$4,543.29/MWh.

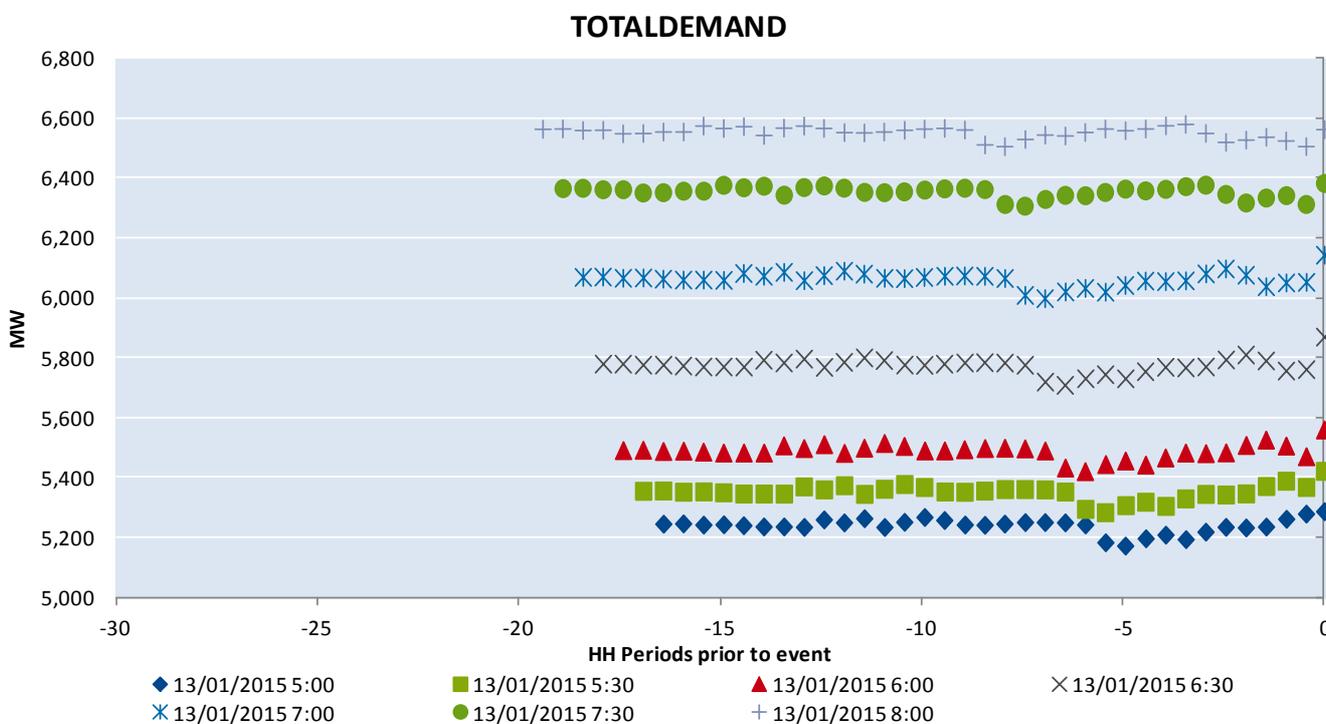
AEMO⁹ explained “the high spot price for TI ending 0700 hrs was not forecast in any of the pre-dispatch schedules due to rebidding of generation capacity and availability within the affected trading interval.”

This statement from AEMO is interesting because it suggests the price outcome is solely the result of rebidding activity within a trading interval. It suggests that other events did not occur at the time and would lead one to infer that the rebidding for 07:00 should not of occurred (nothing material happened) or occurred earlier (the material events happened earlier and the rebid was subject to a misleading delay). However an analysis of the data does not support this. Demand increased more rapidly than had been forecast. The following figure shows actual demand was in excess of all the Predispatch data points.

⁹ <http://www.aemo.com.au/Electricity/Resources/Reports-and-Documents/Pricing-Event-Reports/January-2015>

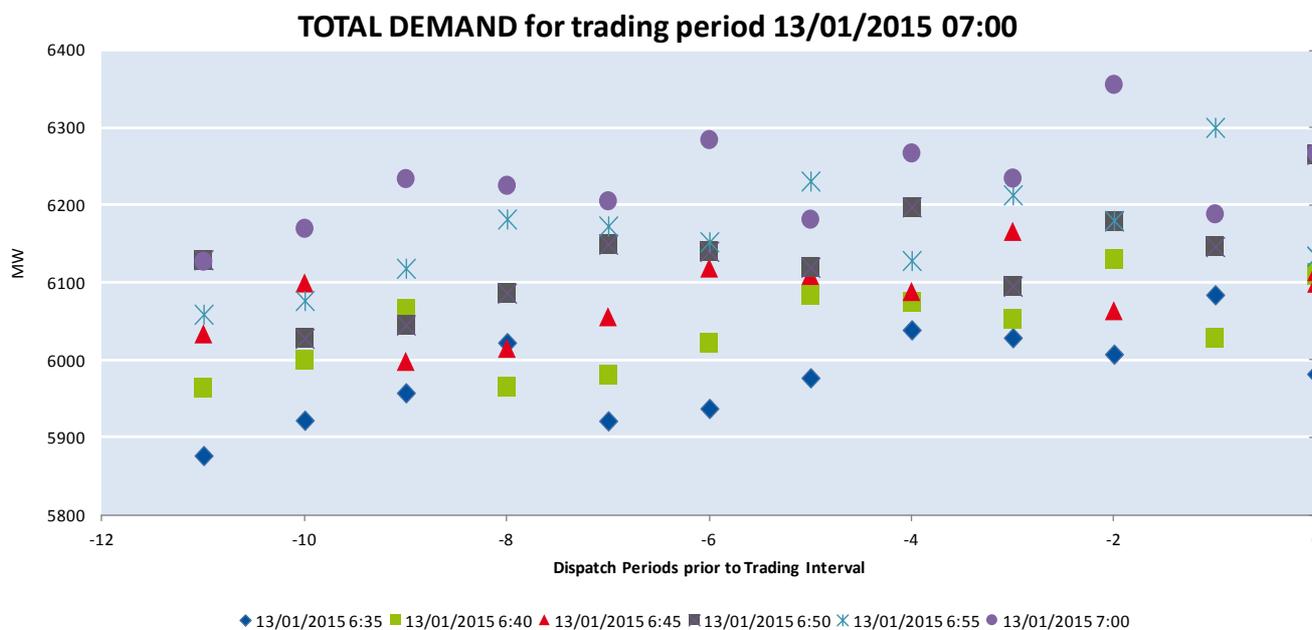


The following figure shows Predispach demand was under forecast a half hour ahead.

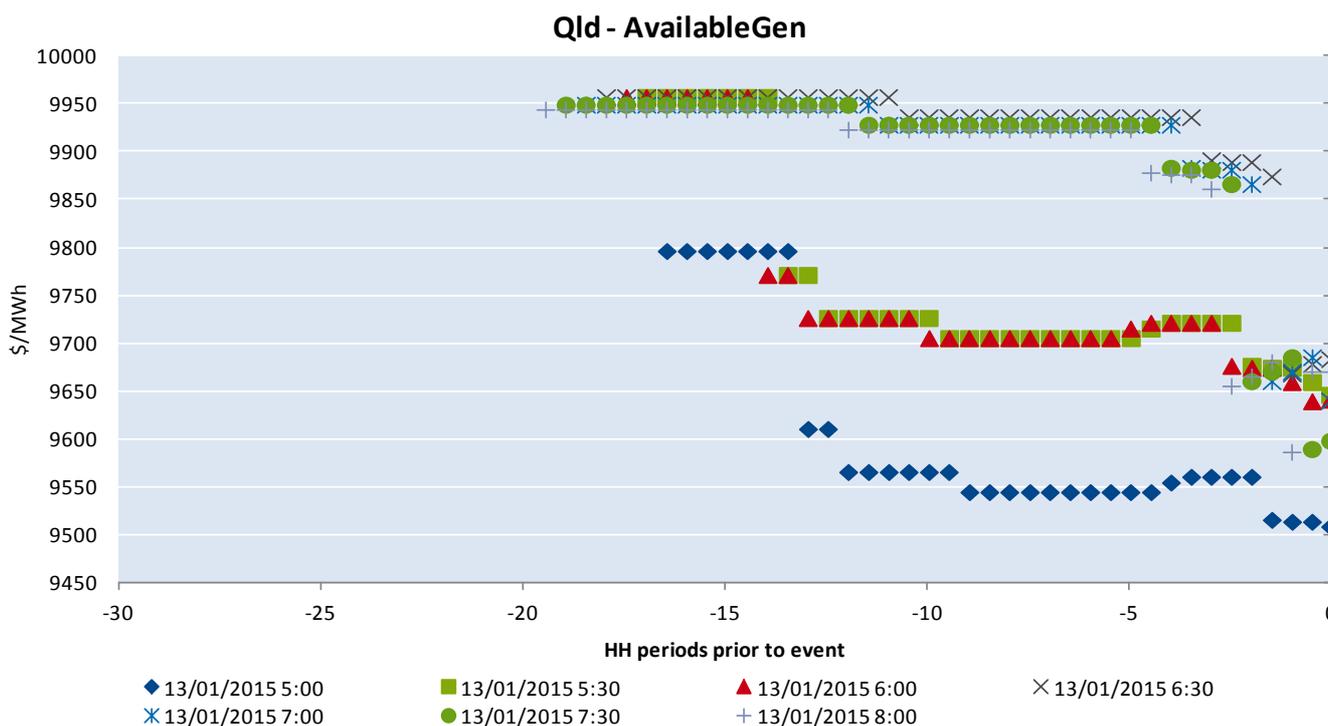


The following figure shows the P5min Predispach data for trading interval 07:00. The data does show the Predispach and P5min Predispach were below dispatch. The P5min Predispach shows how demand forecast changed, with values tending up consistent with the P5min Predispach price forecast

in the table below. The P5min Predispatch for each dispatch interval an hour ahead of dispatch 6,031MW was lower than the actual demand 6,142MW, as was the last run of Predispatch at 06:33 of 6,052MW and the previous forecast at 06:03 of 6,050MW.

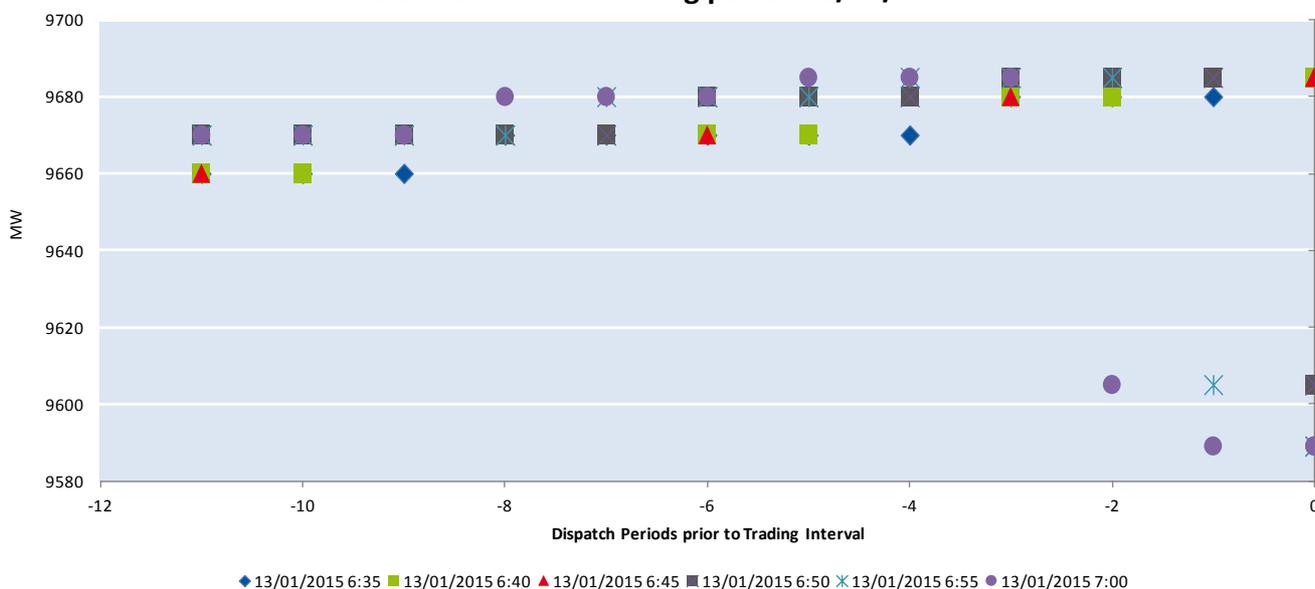


In addition, the available generation dropped off quite rapidly in the half hours leading up to the high priced trading interval.



And in the last three dispatch intervals within the trading interval.

Available Generation for trading period 13/01/2015 07:00

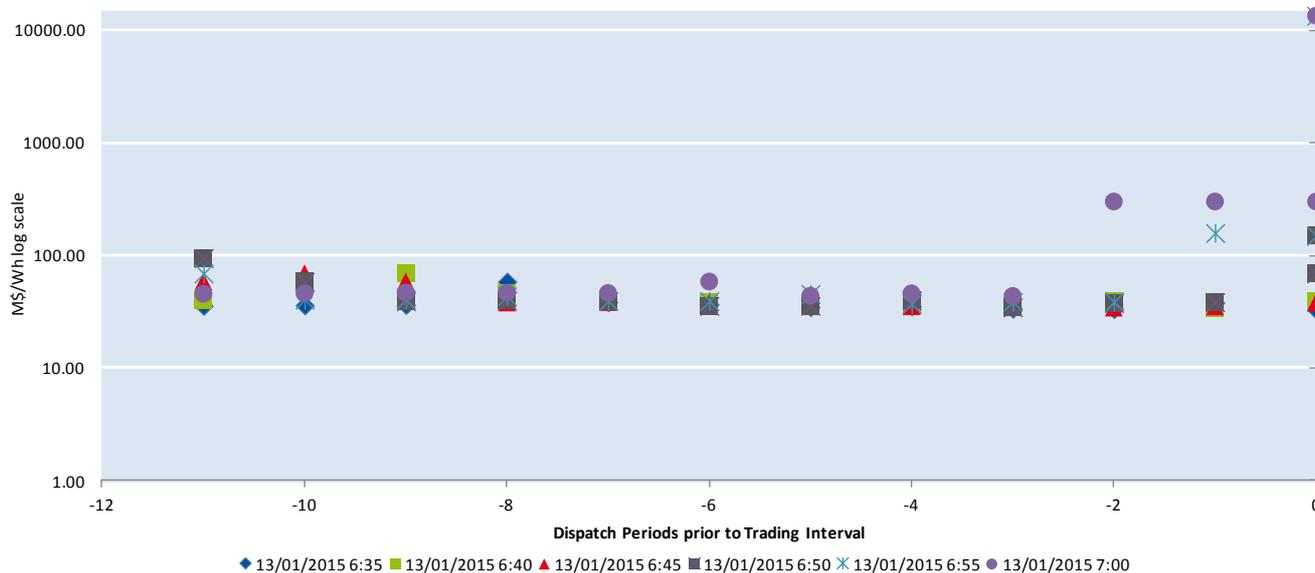


For the interconnectors, AEMO explained in its pricing report that the QNI was limited by an outage constraint: N::Q_BW_M_BUS_KC which prevents transient instability for tripping of the Kogan Creek PS during outage of the Bayswater 330kV main busbar. On the Terranora interconnector, flows were limited to 51 MW during the high priced DIs by constraint equation N>LSDU9U6_LSDU9U7 which prevents overload on a Lismore – Dunoon 132 kV line for the loss of the parallel line.

The Predispatch and P5 min Predispatch forecasts did not include the very high prices, although they did include increases in price as demand increased and the market cleared with the rebidding of 355MW to higher price bands of CS Energy and Stanwell.

RRP for trading period 13/01/2015 07:00																		
RRP	Actual	Run_Datetime																
		5:40 AM	5:45 AM	5:50 AM	5:55 AM	6:00 AM	6:05 AM	6:10 AM	6:15 AM	6:20 AM	6:25 AM	6:30 AM	6:35 AM	6:40 AM	6:45 AM	6:50 AM	6:55 AM	7:00 AM
13/01/2015 6:35	\$35	\$36	\$36	\$36	\$58	\$39	\$37	\$35	\$35	\$34	\$33	\$38	\$33					
13/01/2015 6:40	\$39		\$40	\$58	\$69	\$47	\$39	\$38	\$38	\$35	\$35	\$39	\$34	\$38				
13/01/2015 6:45	\$38			\$58	\$69	\$58	\$38	\$38	\$38	\$35	\$35	\$39	\$34	\$35	\$38			
13/01/2015 6:50	\$150				\$95	\$58	\$39	\$40	\$39	\$36	\$36	\$40	\$35	\$38	\$39	\$69		
13/01/2015 6:55	\$13,499					\$69	\$40	\$41	\$43	\$39	\$39	\$46	\$37	\$39	\$39	\$159	\$150	
13/01/2015 7:00	\$13,499						\$46	\$46	\$47	\$47	\$46	\$58	\$44	\$46	\$44	\$301	\$301	\$301

RRP for trading period 13/01/2015 07:00



The evidence suggests the price was not forecast in the Predispatch forecasts, not solely because of generator rebidding as surmised by AEMO, but because Predispatch was based on materially different input data, be it demand, interconnector export limits, generator availability and generator offers. If different data is used in the same calculation one should not expect the same result.

In addition, the Predispatch schedule operates as an unconstrained pricing bid-stack, which means the inputs from generator offers are not limited by the available ramp rate, fast start inflexibility profile, AGC SCADA data. Once these limits are inputted into the price calculation for the five minutes, this can produce different results, with these results being higher prices (because a constraint will always increase, rather than reduce price).

AEMO goes on to explain, “Generation capacity offered at cheaper prices at $-\$1.01/\text{MWh}$ and less was available from units at Roma GT but these units required more than one DI to synchronise before being able to generate. Generation capacity offered at $\$58.49/\text{MWh}$ and less was also available from Braemar unit 1 however the unit was limited by its ramp up rate”.

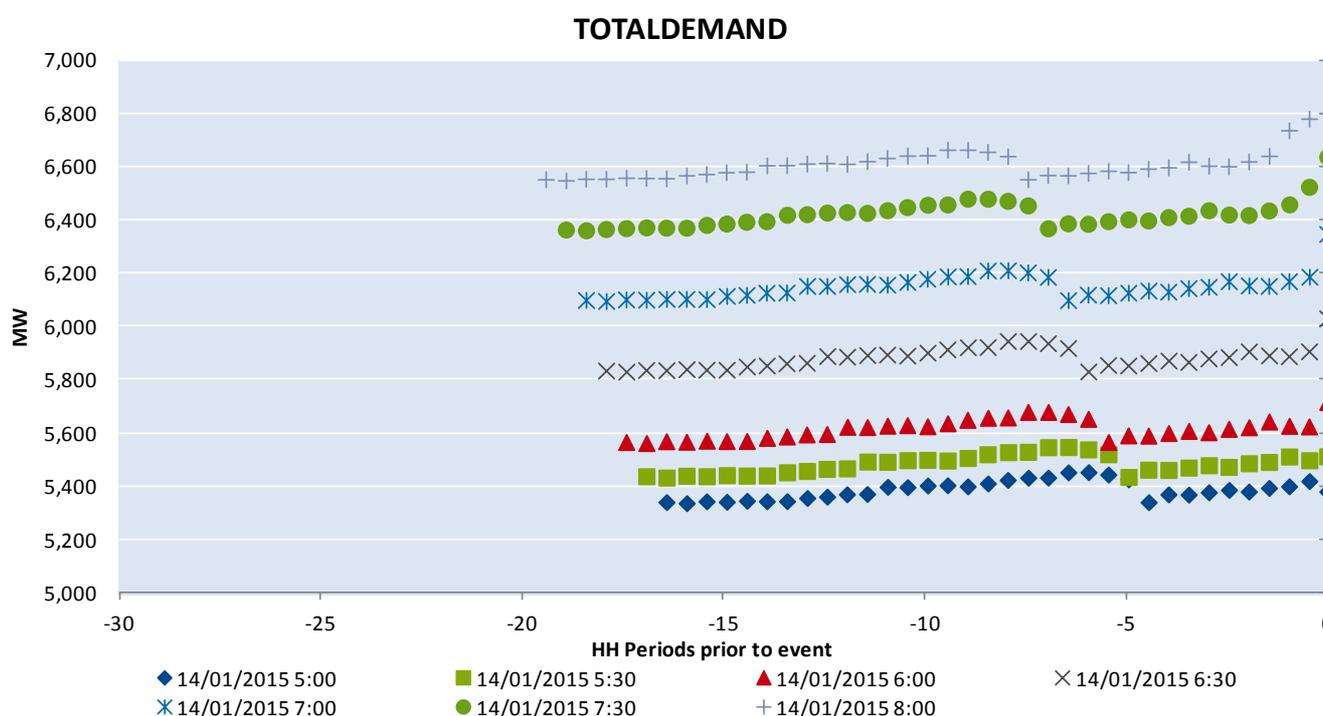
With these comments AEMO is explaining why the outcome, when we include the change in demand in export limits, in dispatch differs from Predispatch. It differs because the material circumstances, such as an inability of Roma GT or Braemar 1 to supply, (represented as inputs into the price calculation), are different.

This leads us onto the 14th January 2015. AEMO’s Predispatch also under forecast demand. This time however suppliers had anticipated the error in AEMO’s forecast and, even with rebidding by some suppliers of volumes into higher prices, the price did not clear above $\$45/\text{MWh}$. Importantly the other suppliers, following on from the 13th, had formed the subjective expectation that AEMO would under forecast demand and they would need to participate.

This is contrary to the Commission’s view¹⁰ explained in the Draft Determination whereby it is said:

“late rebidding by generators can prevent other market participants from acting on their learnings and skew the market towards outcomes that are more favorable for those generators that are online and regularly dispatched”.

This is not true of the 13th and 14th January 2015. The evidence indicates that these participants *may* have failed to react to developing circumstances on the morning of the 13th, but it also shows that they did react to developing circumstances on the morning of the 14th.



The AEMC¹¹ does not consider it efficient that participants may choose to use a standing gas turbine or demand side control systems to manage market exposure to rebidding close to dispatch. We note that how a participant hedges market exposure is a private decision where the benefits are private and as such, so should be the costs. It is not a decision that the AEMC need make.

The choice was either:

- to buy a firm hedge, for instance a Q1 2015 swap at \$45/MWh in October 2014, as evidenced by Figure 2d: QLD Q1, 2015; or
- use a non-firm physical asset, as evidenced by this example of the 13th and 14th January 2015.

¹⁰ AEMC, Page 20, Draft Determination, Bidding in Good Faith

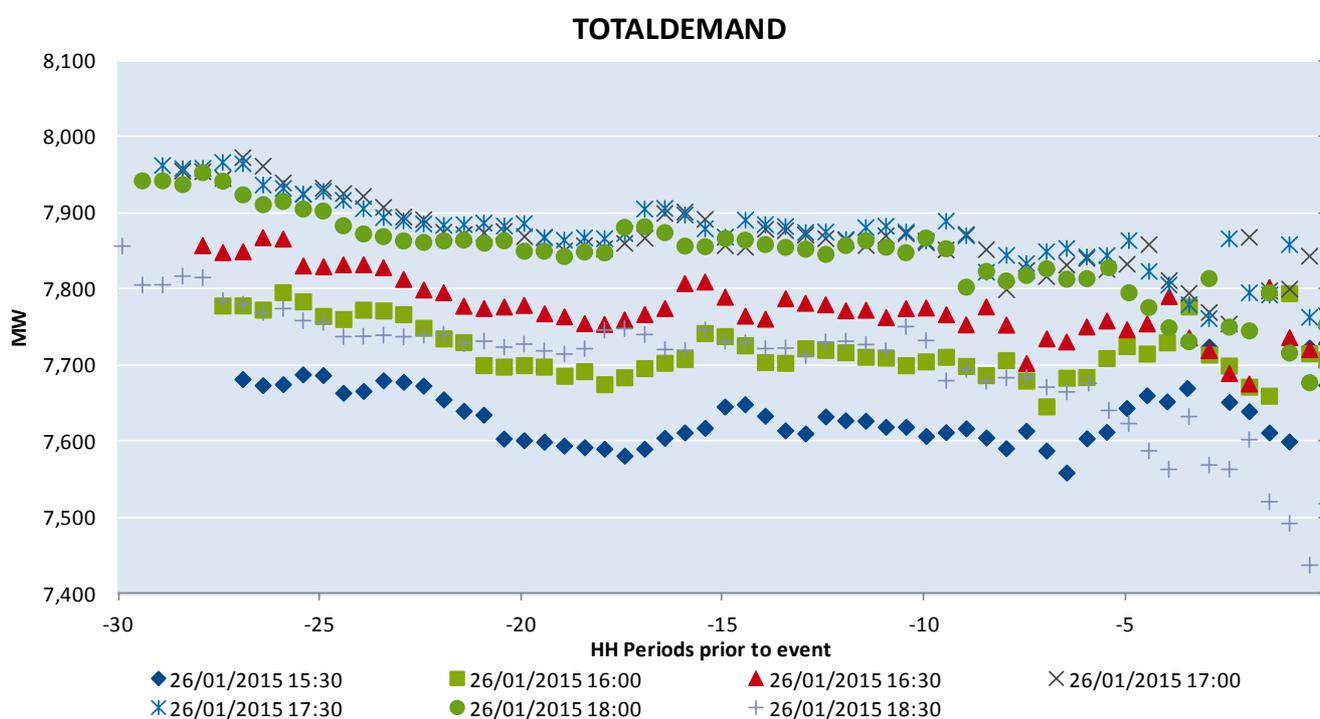
¹¹ Page 20 Draft Determination

6. 26th January 2015

The 26th January is interesting because trading intervals ending 17:00 and 18:00 included prices at the cap, with the trading interval prices being \$2,278.01/MWh and \$2,274.37/MWh respectively.

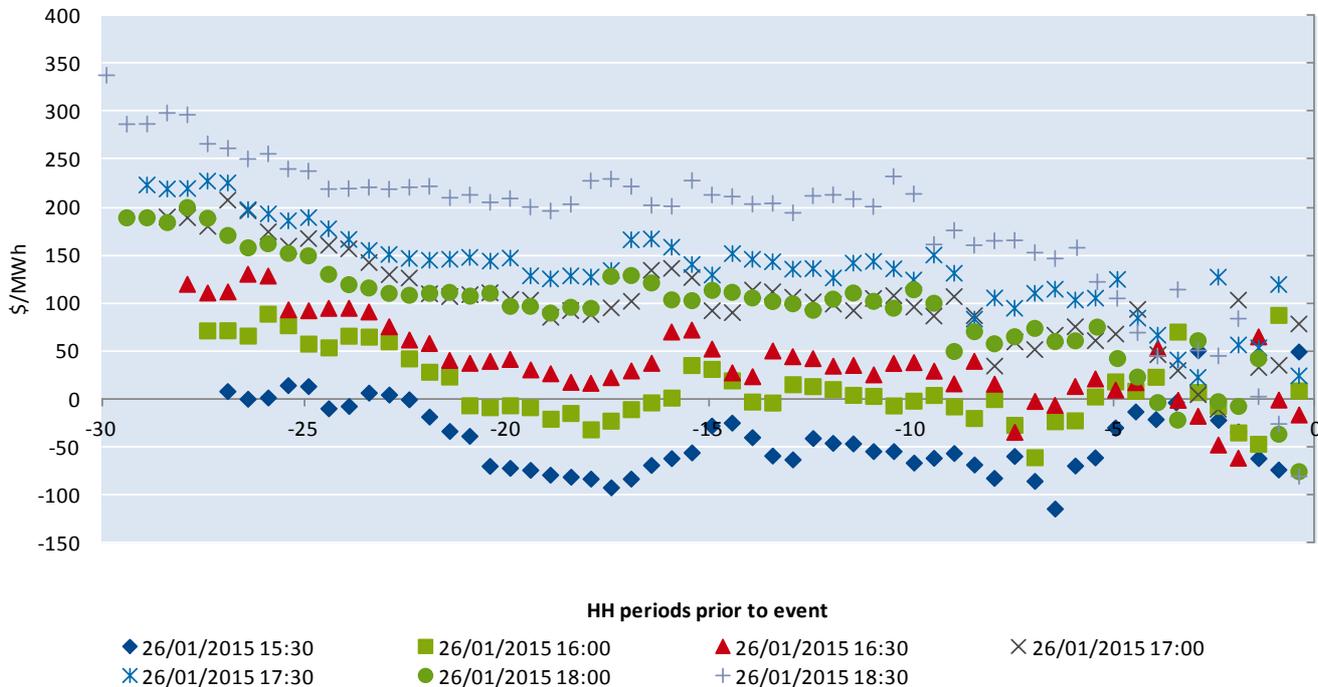
Within each of these trading intervals Stanwell and CS Energy rebid significant volumes to higher price bands, with rebids made for events occurring within the trading intervals. Stanwell had already rebid capacity at 13:41.

The Predispatch demand forecast gradually reduced as time reduced.



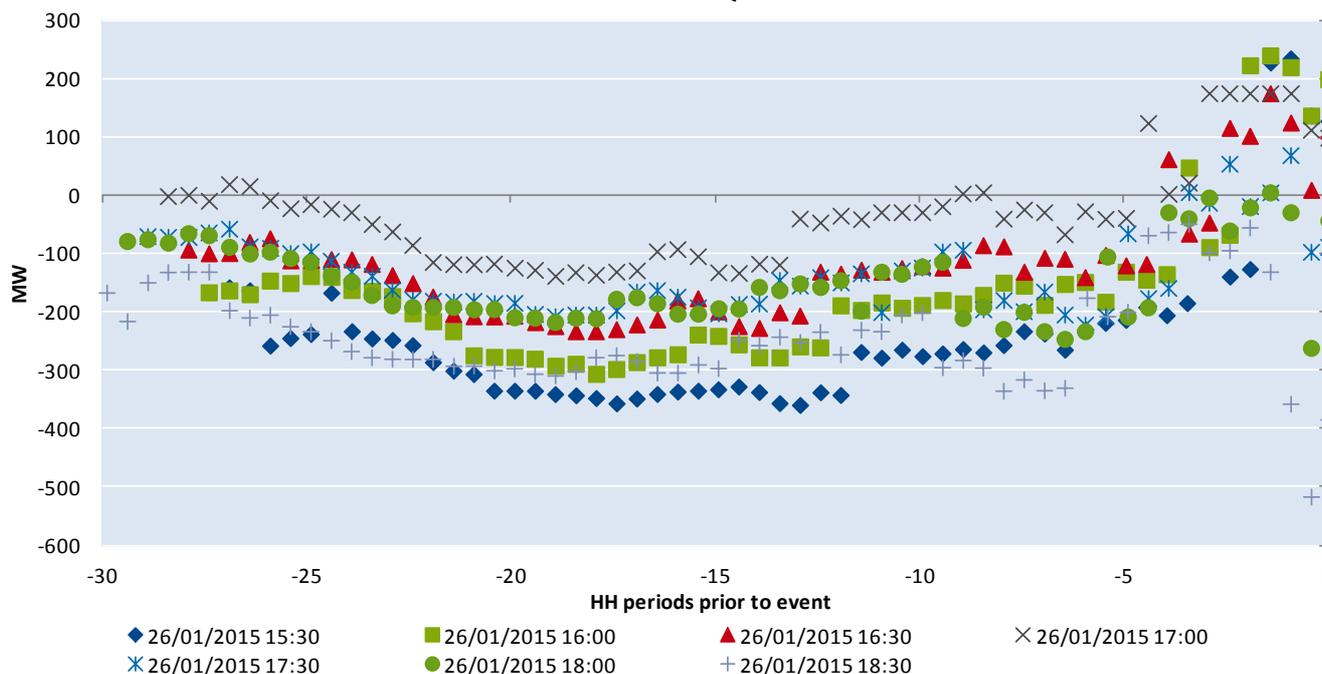
The error in the demand forecast reduced as time reduced to dispatch, although there were some significant deviations (positive and negative) in the demand forecast in the two to three hours before dispatch.

DemandError

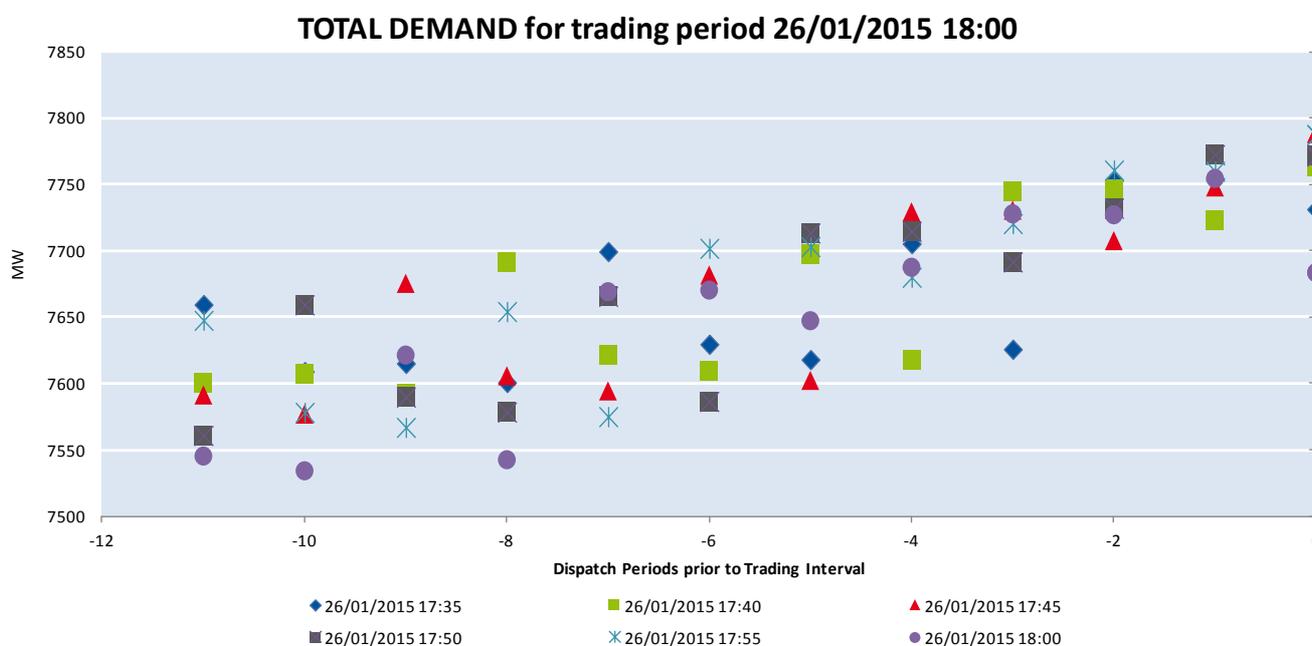
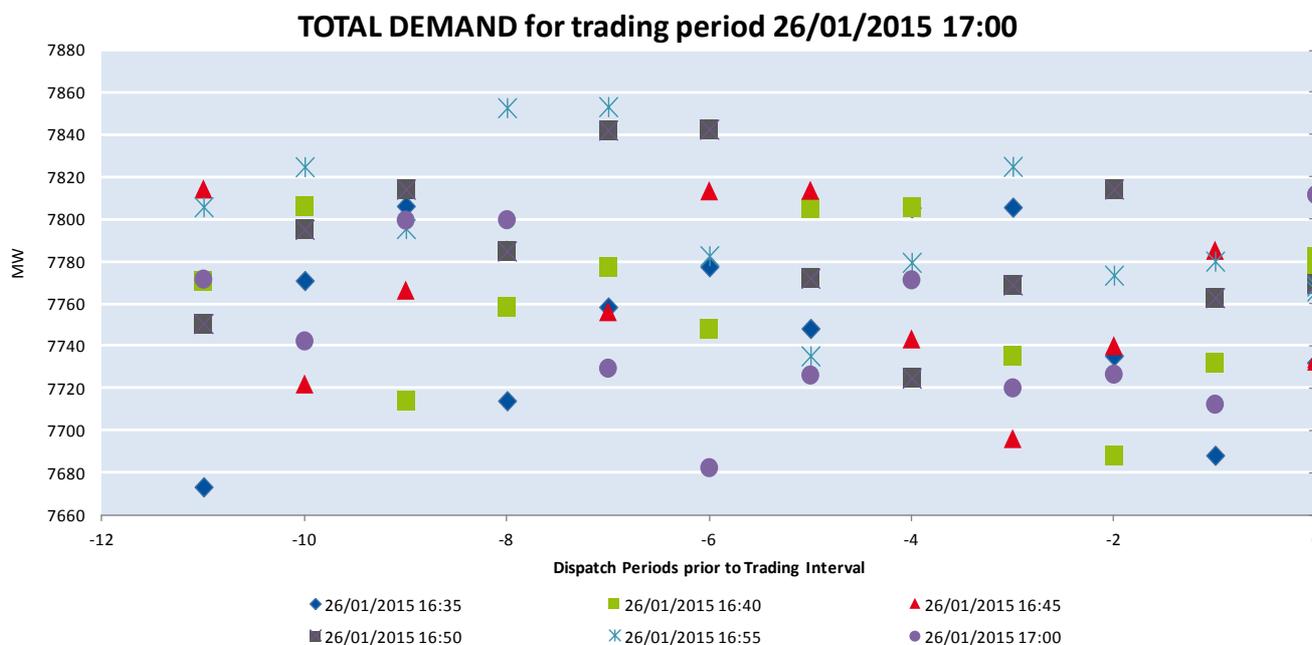


The demand forecasts had solicited significant supply, with all gas-fired peaking plant operating bar Oakey 2 and Mt Stuart 3. In response to this additional supply, Stanwell and Millmerran had reduced supply throughout the day. The flow across the interconnector tightened in Predispatch as a result.

MWFlow - QNI



The P5min Predispatch information for 17:00 did not show a significant improvement as time reduced, although the data for 18:00 did improve as time reduced to dispatch, with an increase in demand of 150-200MW.



One can assume the key subjective expectations as participants headed into Trading Interval 17:00 were whether demand would maintain its level and would capacity from Mt Stuart 3 and Oakey 2 be committed. Rebids were made for 17:00 by Callide, Stanwell and CS Energy all citing events that were occurring at the time, with Stanwell rebidding for dispatch interval 16:50, Callide for dispatch interval

16:55 and CS Energy for dispatch interval 17:00. Oakey 2 received a target of 10MW for period ending 17:00 as the price cleared at \$13,499/MWh and for four further dispatch intervals received cleared targets of 60MW but did not start. AEMO later reported¹² Sun Metals reduced load by up to 80 MW for dispatch intervals 17:05. This served to reduce prices during the trading interval 17:30.

For period ending 18:00 Stanwell, Callide and then CS Energy made rebids, at different times, citing events that occurred during the trading interval. As can be observed from the P5min Predispatch data, the demand increased over forecast to 7,754MW, over 140MW greater than P5min Predispatch values an hour ahead (7,600MW) of dispatch, and marginally greater than Predispatch 17:04 7,717MW and 7,678MW 17:34.

The sophisticated market participants dispatching Mt Stuart 3 and Oakey 2 had the opportunity to commit their units, yet did not and the price cleared at the \$13,499/MWh.

In this example, when the rebids were made, had it been known earlier whether:

- units Mt Stuart 3 and Oakey 2 would be committed, in a similar fashion to the other peaking units;
- demand would sustain high prices, given the reduction through the Predispatch forecast; and
- whether Demand Side Participation would be committed (which it was)?

Whether or not these events happened remained subjective up to dispatch. They were represented to the trader through Predispatch, P5min Predispatch and other AEMO data as the auctioned closed, but this information was not known earlier.

¹² <http://www.aemo.com.au/Electricity/Resources/Reports-and-Documents/Pricing-Event-Reports/January-2015>



Appendix 4: Traded prices electricity derivatives on the power exchange

The following table and figures present data for quarterly flat swaps traded on the power exchange. Please note these contracts represented traded volumes for Q1 only, and Q1 is also be traded under Calendar and Financial Year derivative products.

QLD	Volume traded	Volume weighted price	Average RRP
Q1 2013	5190	\$69.16	\$97.43
Q1 2014	3184	\$72.13	\$65.82
Q4 2014	5012	\$41.23	\$56.92
Q1 2015	4917	\$57.42	\$91.44

Data sourced from D-Cypha / ASX

Volume traded is total volume of contracts (in MWs) traded through the Sydney Futures Exchange (SFE) on the relevant day

Open interest is total net open contract positions across all counterparties for a particular contract (e.g. Q1 2015) for SFE traded contracts only. **Settle price** is calculated the price of a particular contract (e.g. Q1 2015) at the close of the trading day (4pm EST)

Open interest provides an indication of the total volume of contracts traded through the SFE for a particular contract at a given date. This does not include over-the-counter trading which may occur directly between counterparties, so it is not necessarily representative of all trading that has occurred for a particular contract. Pricing with little open interest and volumes traded may be considered 'thin' or 'shallow' in that it may not be representative of prices when trading at significant volumes; however, given it does not include over-the-counter trading which may occur directly between counterparties, it is not necessarily representative of all trading that has occurred for a particular contract. The evidence suggests that electricity derivatives were available in reasonable quantities for the QLD region of the NEM. Ex-carbon, derivatives for the quarters Q1 2013 and 2014 were trading well below \$50/MWh.

Figure 2a: QLD Q1, 2013

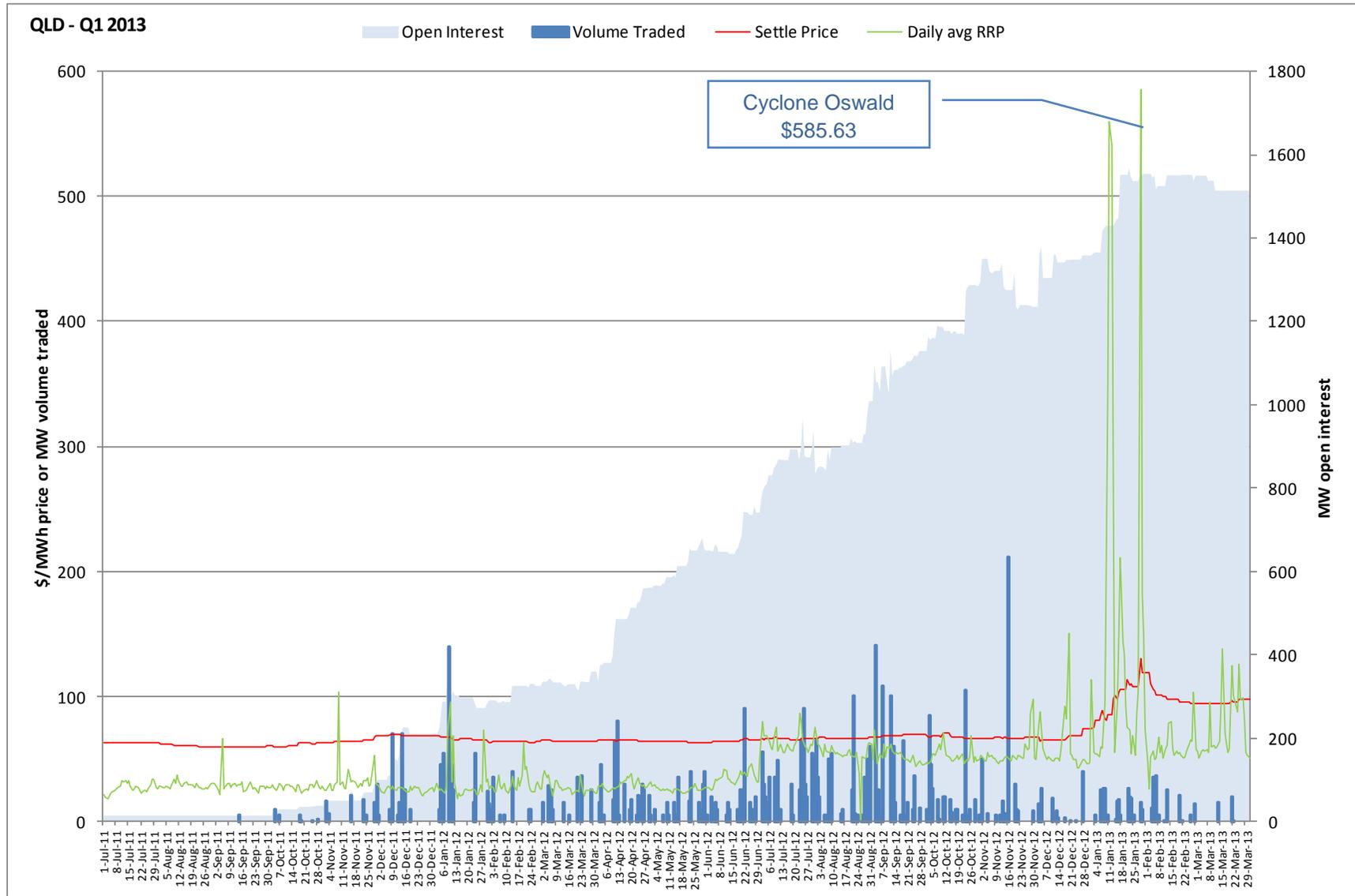


Figure 2b: QLD Q1, 2014

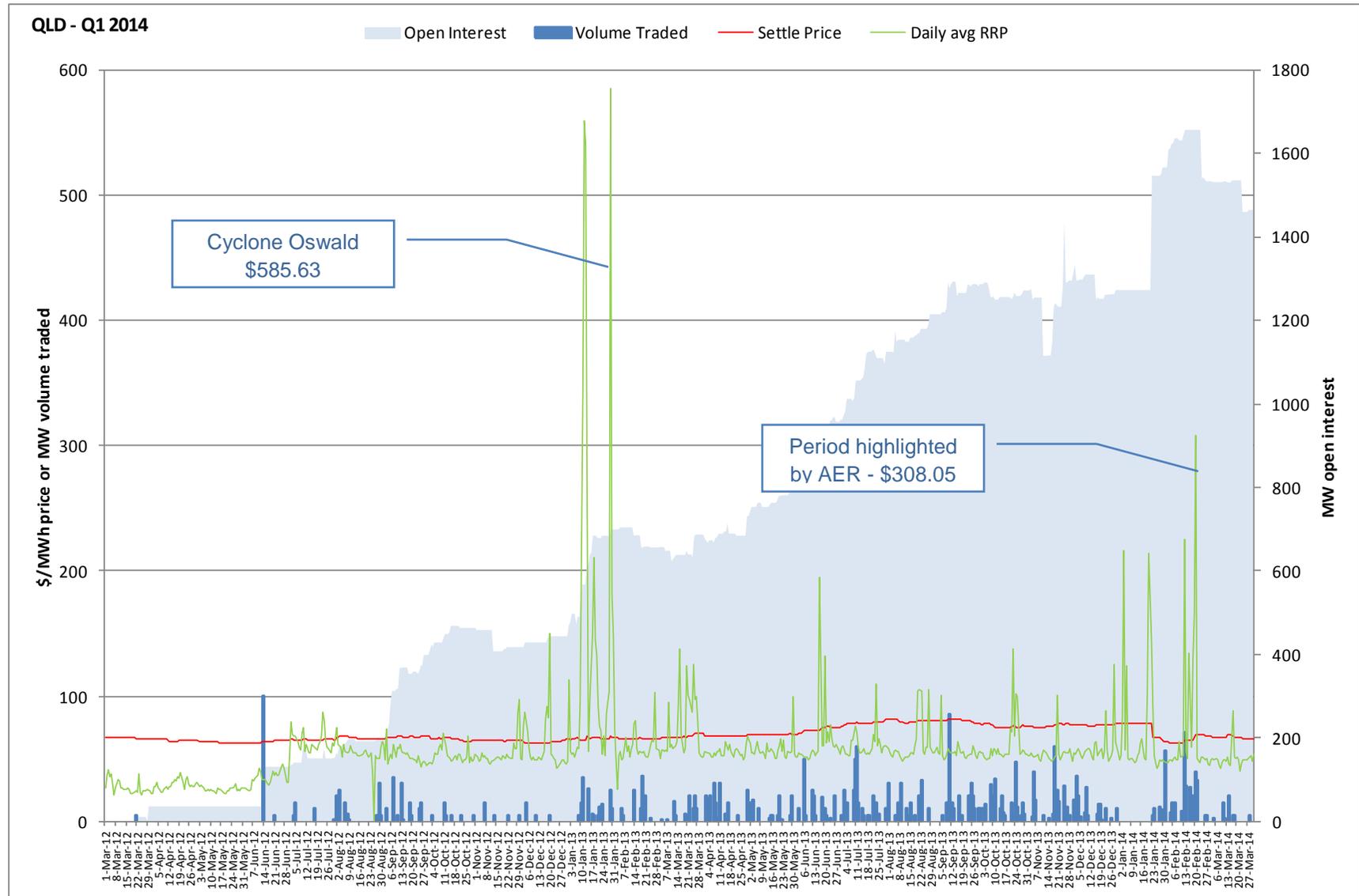


Figure 2c: QLD Q4, 2014

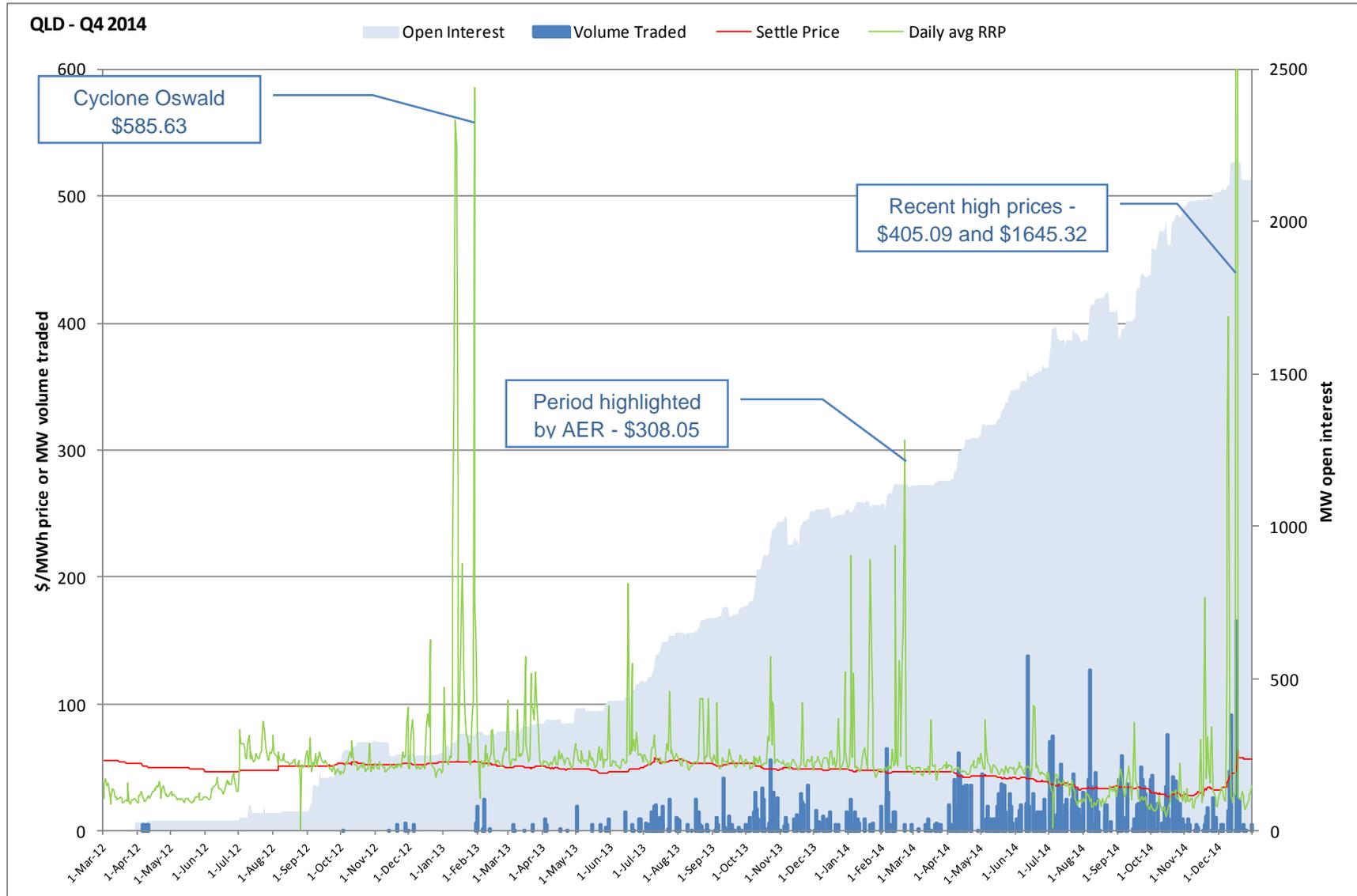


Figure 2d: QLD Q1, 2015

