

WEEKLY ELECTRICITY MARKET ANALYSIS



AUSTRALIAN ENERGY
REGULATOR

2 December – 8 December 2012

Spot market prices

Figure 1 sets out the volume weighted average (VWA) prices for the week 2 December to 8 December and the 12/13 financial year to date (YTD) across the NEM. It compares these prices with price outcomes from the previous week and year to date respectively.

Figure 1: Volume weighted average spot price by region (\$/MWh)

	Qld	NSW	VIC	SA	Tas
Average price for 2 - 8 December 2012	67	52	52	52	51
% change from previous week*	-4	-30	-76	-55	-10
12/13 financial YTD	57	59	66	65	49
% change from 11/12 financial YTD **	92	86	135	80	61

*The percentage change between last week's average spot price and the average price for the previous week. Calculated on VWA prices prior to rounding.

**The percentage change between the average spot price for the current financial year and the average spot price for the previous financial year. Percentage changes are calculated on VWA prices prior to rounding.

Further information is provided in Appendix A when the spot price exceeds three times the weekly average and is above \$250/MWh or less than \$-100/MWh. Longer term market trends are attached in Appendix B.¹

Financial markets

Figures 2 to 9 show futures contract² prices traded on the Australian Securities Exchange (ASX) as at close of trade on Monday 10 December 2012. Figure 2 shows the base futures contract prices for the next three calendar years, and the average over these three years. Also shown are percentage changes³ from the previous week.

Figure 2: Base calendar year futures contract prices (\$/MWh)

	QLD		NSW		VIC		SA	
Calendar Year 2013	57*	-1%	56*	-2%	54	-2%	59	-1%
Calendar Year 2014	55*	-2%	56*	-2%	53*	-1%	57	0%
Calendar Year 2015	51	0%	52	0%	48*	-4%	53	0%
Three year average	54	-1%	55	-1%	52	-2%	56	0%

Source: ASX/ d-cyphaTrade www.d-cyphatrade.com.au

* denotes trades in the product.

¹ Monitoring the performance of the wholesale market is a key part of the AER's role and an overview of the market's performance in the long term is provided on the AER website. Long-term statistics can be found there on, amongst other things, demand, spot prices, contract prices and frequency control ancillary services prices. To access this information go to www.aer.gov.au -> Australian energy industry -> Performance of the energy sector.

² Futures contracts traded on the ASX are listed by d-cyphaTrade (www.d-cyphatrade.com.au). A futures contract is typically for one MW of electrical energy per hour based on a fixed load profile. A base load profile is defined as the base load period from midnight to midnight Monday to Sunday over the duration of the contract quarter. A peak load profile is defined as the peak-period from 7 am to 10 pm Monday to Friday (excluding Public holidays) over the duration of the contract quarter.

³ Calculated on prices prior to rounding.

Figure 3 shows the \$300 cap contract price for Q1 2013 and calendar year 2013 and the percentage change⁴ from the previous week.

Figure 3: \$300 cap contract prices (\$/MWh)

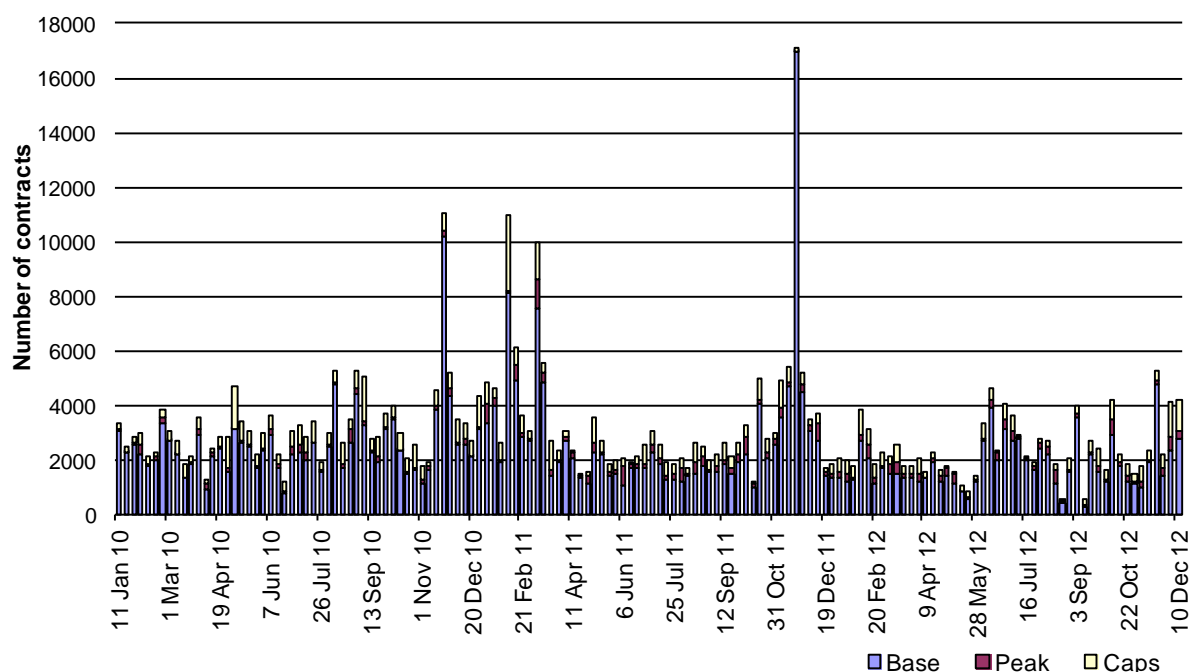
	QLD		NSW		VIC		SA	
Q1 2013 (% change)	11*	-16%	7*	-20%	9*	-18%	14*	-7%
2013 (% change)	5	-9%	4	-10%	4	-11%	7	-3%

Source: ASX/d-cyphaTrade www.d-cyphatrade.com.au

* denotes trades in the product.

Figure 4 shows the weekly trading volumes for base, peak and cap contracts. The date represents the end of the trading week.

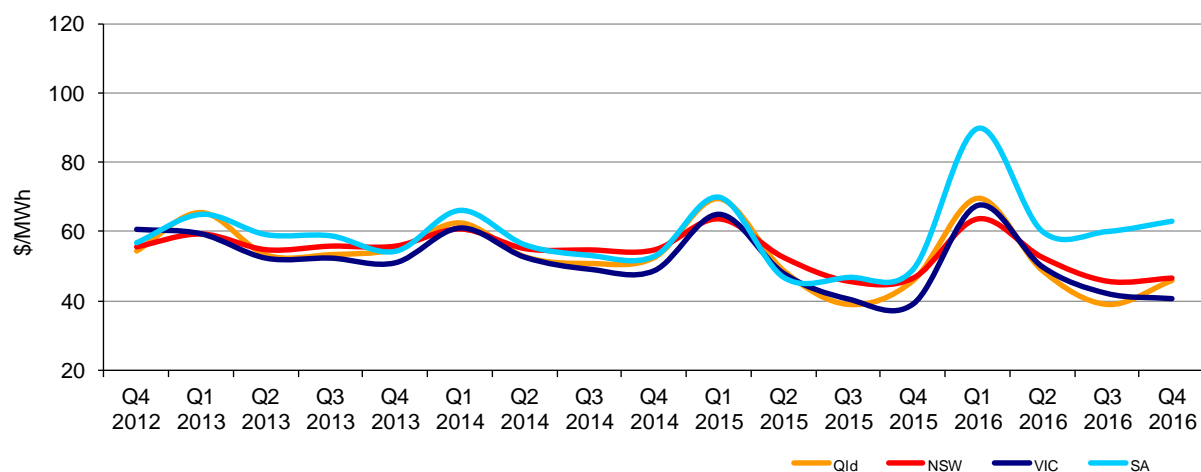
Figure 4: Number of exchange traded contracts per week



Source: ASX/d-cyphaTrade www.d-cyphatrade.com.au

Figure 5 shows the prices for base contracts for each quarter for the next four financial years.

Figure 5: Quarterly base future prices Q4 2012 – Q4 2016

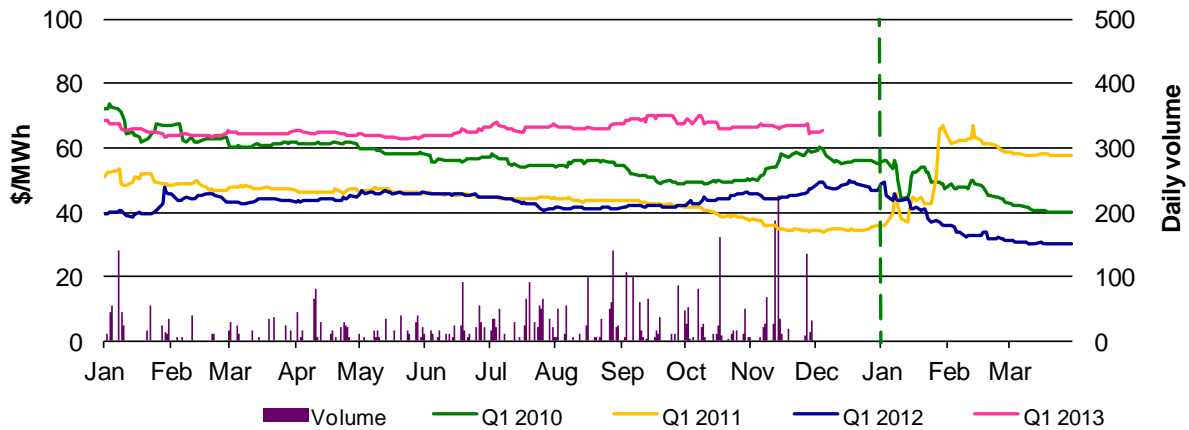


Source: ASX /d-cyphaTrade www.d-cyphatrade.com.au

⁴ Calculated on prices prior to rounding.

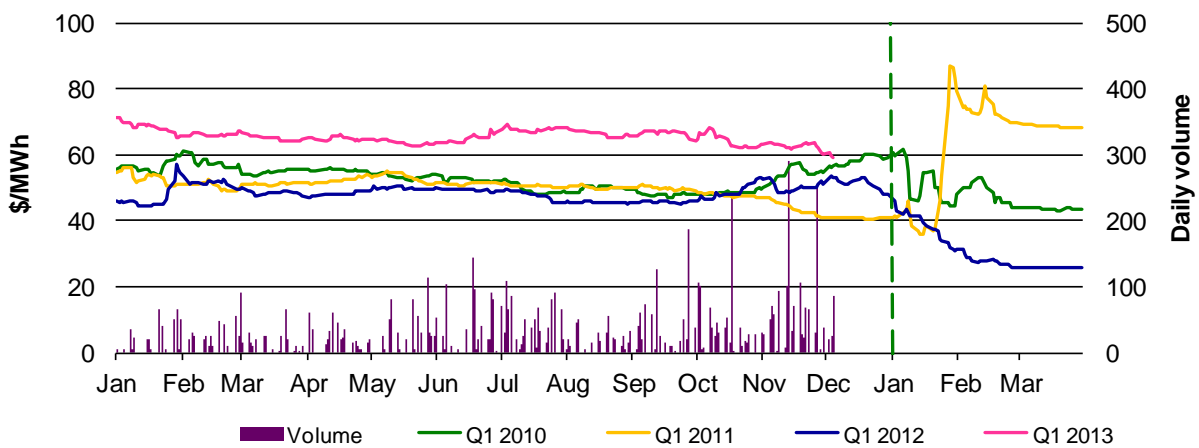
Figures 6-9 compare for each region the closing daily base contract prices for the first quarter of 2010, 2011, 2012 and 2013. Also shown is the daily volume of Q1 2013 base contracts traded. The vertical dashed line signifies the start of the Q1 period for which the contracts are being purchased.

Figure 6: Queensland Q1 2010, 2011, 2012 and 2013



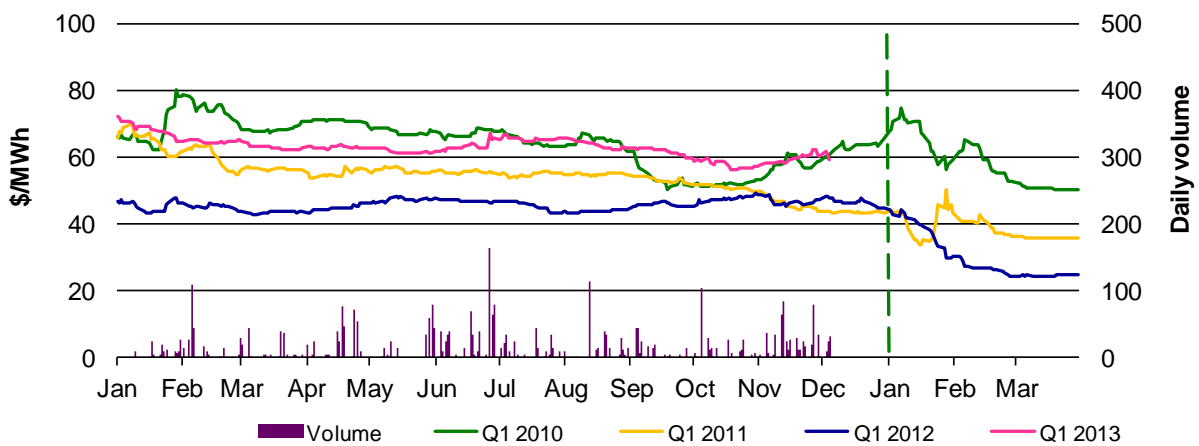
Source: ASX/d-cyphaTrade www.d-cyphatrade.com.au

Figure 7: New South Wales Q1 2010, 2011, 2012 and 2013



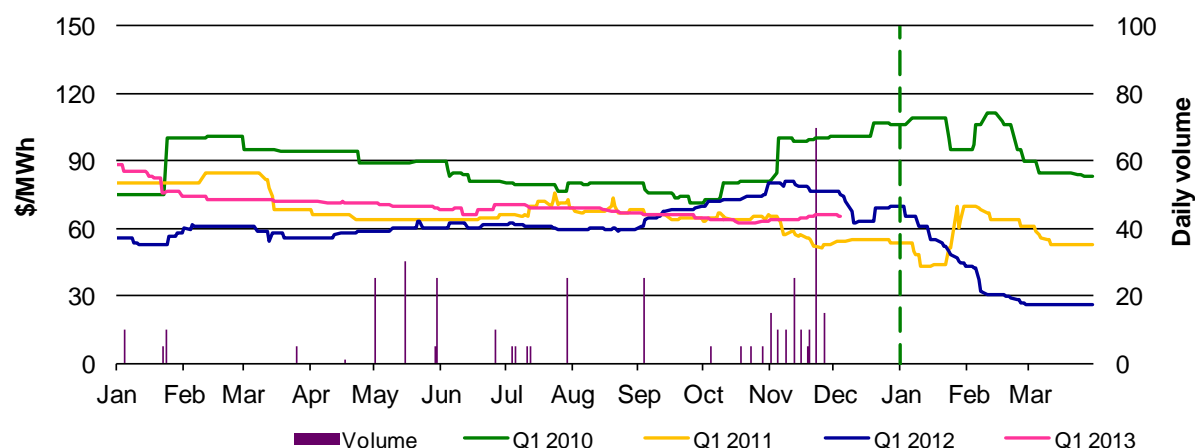
Source: ASX/d-cyphaTrade www.d-cyphatrade.com.au

Figure 8: Victoria Q1 2010, 2011, 2012 and 2013



Source: ASX/d-cyphaTrade www.d-cyphatrade.com.au

Figure 9: South Australia Q1 2010, 2011, 2012 and 2013



Source: ASX/d-cyphaTrade www.d-cyphatrade.com.au

*The daily volume scale for South Australia is smaller than for other regions to reflect the lower liquidity in the market in South Australia.

Spot market forecasting variations

The AER is required under the National Electricity Rules to determine whether there is a significant variation between the forecast spot price published by the Australian Energy Market Operator (AEMO) and the actual spot price and, if there is a variation, state why the AER considers the significant price variation occurred. It is not unusual for there to be significant variations as demand forecasts vary and as participants react to changing market conditions. There were 41 trading intervals throughout the week where actual prices varied significantly from forecasts.⁵ This compares to the weekly average in 2011 of 78 counts and the average in 2010 of 57. Reasons for these variances are summarised in Figure 10.⁶

Figure 10: Reasons for variations between forecast and actual prices

	Availability	Demand	Network	Combination
% of total above forecast	12	34	15	21
% of total below forecast	1	9	0	9

⁵ A trading interval is counted as having a variation if the actual price differs significantly from the forecast price either four or 12 hours ahead.

⁶ The table summarises (as a percentage) the number of times when the actual price differs significantly from the forecast price four or 12 hours ahead and the major reason for that variation. The reasons are classified as availability (which means that there is a change in the total quantity or price offered for generation), demand forecast inaccuracy, changes to network capability or as a combination of factors (when there is not one dominant reason). An instance where both four and 12 hour ahead forecasts differ significantly from the actual price will be counted as two variations. Due to rounding, the numbers may not total 100 per cent.

Demand and bidding patterns

The AER reviews demand, network limitations and generator bidding as part of its market monitoring to better understand the drivers behind price variations. Figure 11 shows the weekly change in total available capacity at various price levels during peak periods.⁷ For example, in Queensland 1056 MW more capacity was offered at prices under \$20/MWh this week compared to the previous week. Also included is the change in average demand during peak periods, for comparison.

Figure 11: Changes in available generation and average demand compared to the previous week during peak periods

MW	<\$20/MWh	Between \$20 and \$50/MWh	Total availability	Change in average demand
QLD	1056	-589	448	373
NSW	272	323	565	-1107
VIC	-131	416	70	-898
SA	-144	81	-69	-414
TAS	-24	-171	-41	-60
TOTAL	1029	60	973	-2106

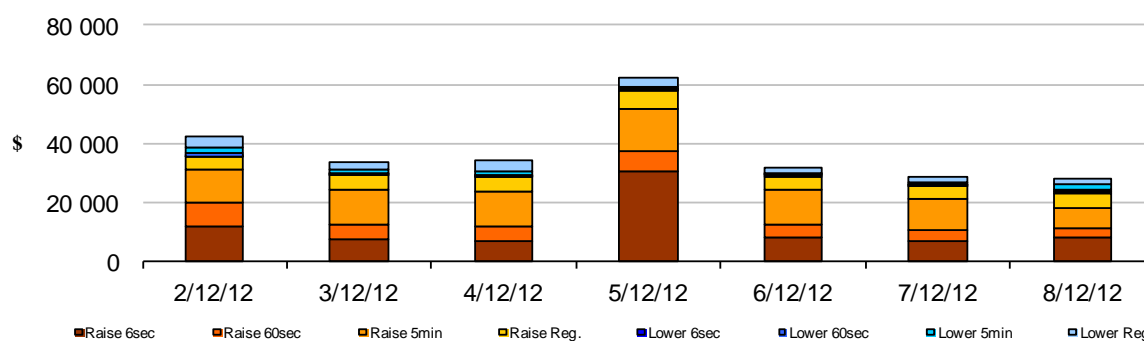
Ancillary services market

The total cost of frequency control ancillary services (FCAS) on the mainland for the week was \$187 000 or less than one per cent of energy turnover on the mainland.

The total cost of FCAS in Tasmania for the week was \$72 000 or less than one per cent of energy turnover in Tasmania.

Figure 12 shows the daily breakdown of cost for each FCAS for the NEM.

Figure 12: Daily frequency control ancillary service cost



⁷ A peak period is defined as between 7 am and 10 pm on weekdays.

2 December – 8 December 2012

Queensland:

There were five occasions where the spot price in Queensland was greater than three times the Queensland weekly average price of \$67/MWh and above \$250/MWh.

These high price events were related to congestion around Gladstone and were caused by a similar set of circumstances as explained in the “*Special report - The impact of congestion on bidding and inter-regional trade in the NEM*” published by the AER in December 2012. The report is available at <http://www.aer.gov.au/node/18855>.

Monday, 3 December

9 AM	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	662.05	54.44	52.90
Demand (MW)	6817	6961	6859
Available capacity (MW)	10 193	10 257	10 277
2.30 PM	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	436.22	100.28	59.38
Demand (MW)	7694	7575	7594
Available capacity (MW)	10 428	10 396	10 407

Actual demand and available capacity was close to forecast.

The dynamic ratings of the Calvale to Stanwell and Calvale to Wurdong lines reduced by around 50 MVA between 8.30 am and 8.35 am. This required a large change in dispatch through a combination of increasing output from generators north of Calvale (e.g. Gladstone and Stanwell Power Stations), reducing generation south of Calvale, and/or increasing the flow on the QNI interconnector towards New South Wales.

The constraint managing the overload of Calvale to Wurdong line on the trip of Calvale to Stanwell line violated at 8.35 am. The constraint requirements could not be met as the output of certain generators in Queensland was unable to be varied sufficiently due to low ramp rates (up and down). The five-minute dispatch price spiked to \$3730/MWh at 8.35 am but then returned to around \$50/MWh for the remainder of the 9 am trading interval. Rebidding did not materially contribute to the spot price outcome.

The network constraints around Gladstone continued to bind interchangeably throughout the day, with the Calvale-Stanwell constraint (Q>>NIL_871_855) binding during the 2.30 pm trading interval. The 2.30 pm trading interval saw volatile dispatch pricing, with the five-minute dispatch price

ranging from \$1542/MWh to \$-343/MWh over 2.05 pm to 2.40 pm inclusive. These five-minute dispatch prices were higher than forecast in 30 minute and 5 minute pre-dispatch and were triggered by a rebid by CS Energy. At 1.48 pm, effective from 2.05 pm, CS Energy rebid 55 MW across Gladstone units one, three and five, from prices below \$300/MWh to above \$12 500/MWh. The reason given was "1348A 855_871 constraint-SL".

There was no other significant rebidding.

Tuesday, 4 December

5 PM	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	577.85	84.43	98.60
Demand (MW)	8479	8399	8319
Available capacity (MW)	10 535	10 527	10 731

Actual demand and available capacity during the trading interval was close to forecast.

The dynamic rating of the Calvale to Stanwell line reduced by around 70 MVA compared to earlier in the day from 10.10 am, causing the constraint managing the overload of Calvale to Wurdong line on the trip of Calvale to Stanwell line to bind. The constraint continued to bind into the afternoon until around 5 pm when the rating gradually increased. This coincided with moderately volatile five minute dispatch prices during the day, reaching up to \$386/MWh.

From 4.30 pm to 4.40 pm the flow on the Calvale to Stanwell line increased by 39 MW. This triggered a large change in dispatch to manage the constraint. High priced capacity from Gladstone was dispatched for the 4.35 pm and 4.40 pm dispatch intervals, as the constraint could not be relieved by other generators as they were either fully dispatched or had insufficient ramp rates. This saw five-minute prices in Queensland reach around \$1600/MWh at 4.35 pm and 4.40 pm. Prices returned to previous levels from 4.45 pm.

There was no significant rebidding. Although some participants rebid to manage the impact of the Calvale constraints, the high dispatch prices in the 5 pm trading interval were not directly precipitated by rebidding.

Wednesday, 5 December

Midday	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	368.27	50.04	53.00
Demand (MW)	6996	7153	7489
Available capacity (MW)	10 458	10 261	10 276
2.30 PM	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	254.21	54.50	55.17
Demand (MW)	7477	7375	7678
Available capacity (MW)	10 367	10 443	10 481

Actual demand and available capacity was close to forecast.

The dynamic rating of the Calvale to Wurdong line reduced by around 76 MVA between 11.25 am and 11.35 am, causing a change in dispatch to satisfy the constraint managing the overload of the line on the trip of the Calvale to Stanwell line.

The majority of generators online that could alleviate the constraint were either fully dispatched or had insufficient ramp rates which saw 5-minute prices in Queensland reach \$3211/MWh at 11.35 am. This was followed by negative prices for the 11.45 am and 11.50 am dispatch intervals when over 1500 MW of capacity was rebid to prices close to the market floor.

The constraint which manages the loading on the Calvale to Stanwell line on trip of the Calvale to Wurdong line began to bind from 12.30 pm. During the 2.30 pm dispatch interval, the dynamic rating of the Calvale to Stanwell line reduced by 49 MVA. As with previous changes in dynamic ratings of the Calvale lines, this reduction required changes in dispatch. Numerous generators were again fully dispatched or ramp rate limited such that 5-minute prices in Queensland reached \$1002/MWh at 2.30 pm.

At 1.22 pm, effective from 1.35 pm, CS Energy rebid a total of 500 MW of capacity across four Gladstone units from under \$65/MWh to over \$289/MWh and reduced the ramp up rate to the minimum allowable of 3 MW per minute. The reason given was '1320A 855_871 constraint-SL.'

At 1.36 pm, effective from 2.05 pm, Stanwell Corporation rebid 270 MW of capacity at Stanwell from prices below \$25/MWh to above \$2415/MWh (a majority was priced at \$12 740/MWh). The reason given was "1335A correction to previous bid update Stanwll prfile for cnst."

There was no other significant rebidding.