

WEEKLY ELECTRICITY MARKET ANALYSIS



AUSTRALIAN ENERGY
REGULATOR

5 – 11 May 2013

Spot market prices

Figure 1 sets out the volume weighted average (VWA) prices for 5 May to 11 May 2013 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 5 May - 11 May 2013	57	57	52	83	52
% change from previous week*	-7	-2	-1	-12	28
12-13 financial YTD	71	56	61	66	49
% change from 11-12 financial YTD**	139	87	121	105	49

*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 Friday 10 May 2013. 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 2014	55	0%	53 (32)	-1%	49	0%	56	-1%
Calendar Year 2015	47	0%	46	0%	42	0%	48	0%
Calendar Year 2016	51	0%	52	0%	50	0%	63	0%
Three year average	51	0%	50	0%	47	0%	56	0%

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

A number in brackets denotes the number of 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 2014 and calendar year 2014 and the percentage change⁴ from the previous week.

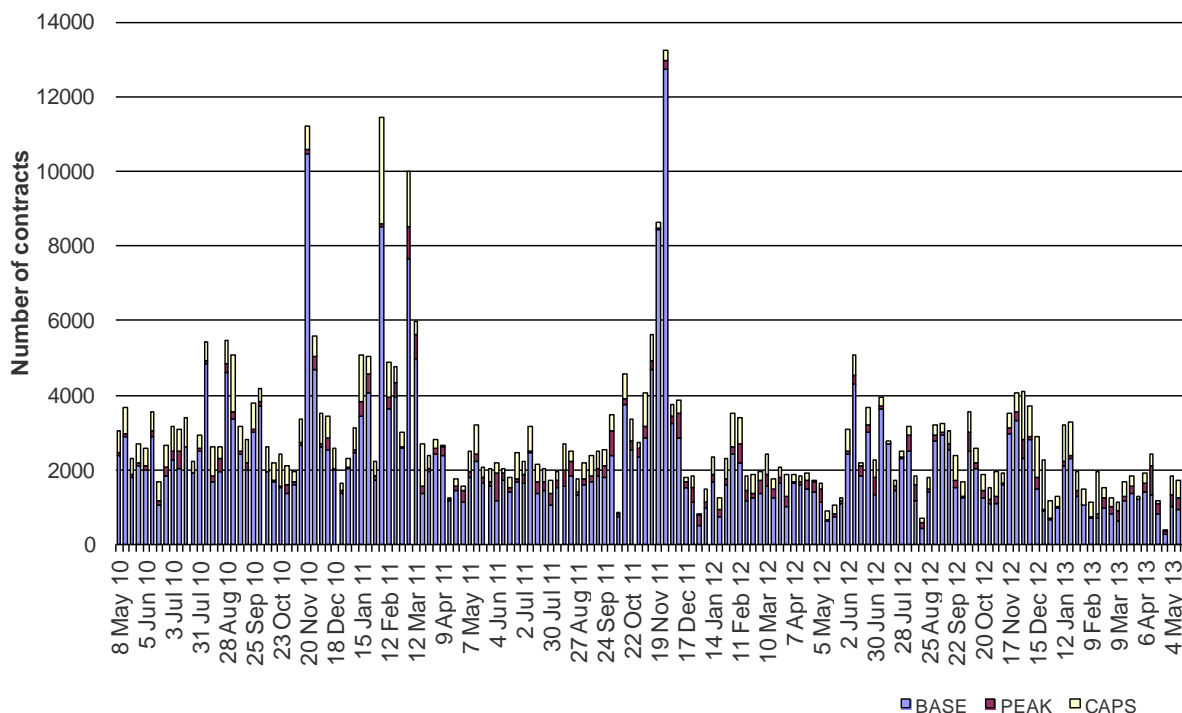
Figure 3: \$300 cap contract prices (\$/MWh)

	QLD		NSW		VIC		SA	
Q1 2014	12 (10)	0%	8 (26)	-4%	10 (36)	-3%	16	0%
2014	6	-1%	4	-2%	4	-4%	8	0%

Source: d-cyphaTrade/ASX www.d-cyphatrade.com.au
 A number in brackets denotes the number of trades in the product.

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

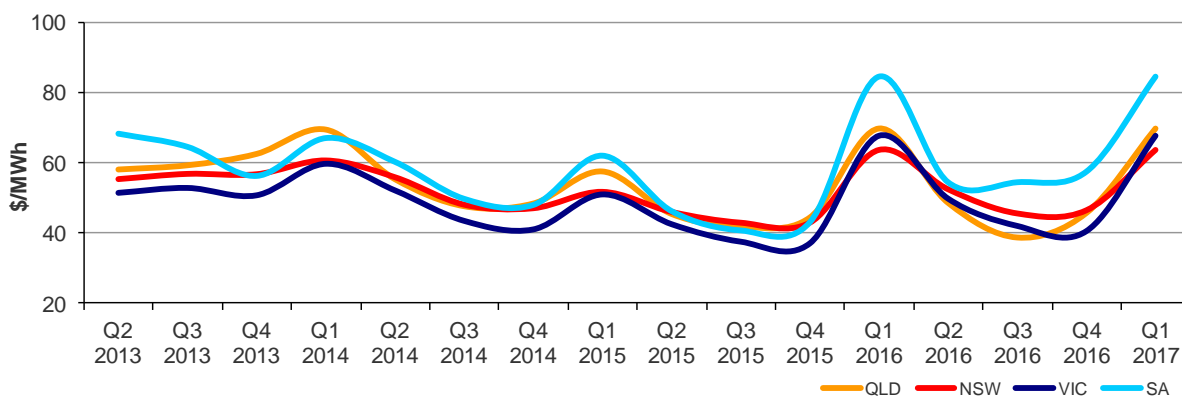
Figure 4: Number of exchange traded contracts per week



Source: d-cyphaTrade/ASX 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 Q2 2013 – Q1 2017

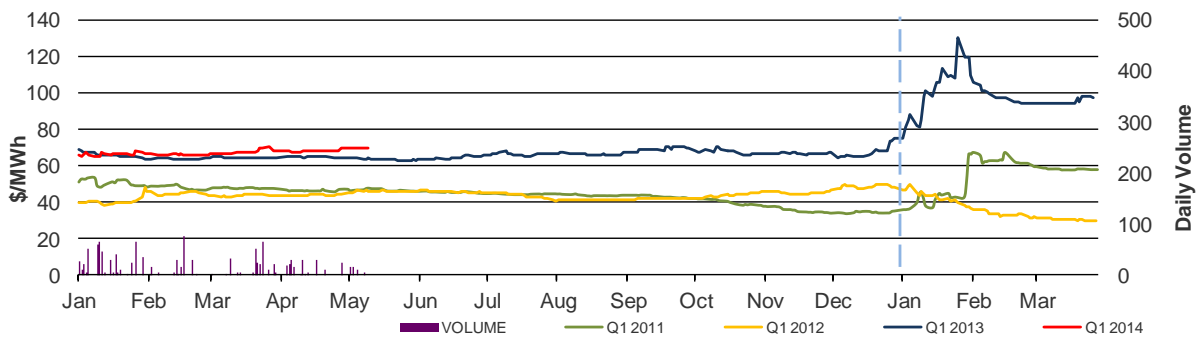


Source: d-cyphaTrade/ASX www.d-cyphatrade.com.au

⁴ Calculated on prices prior to rounding.

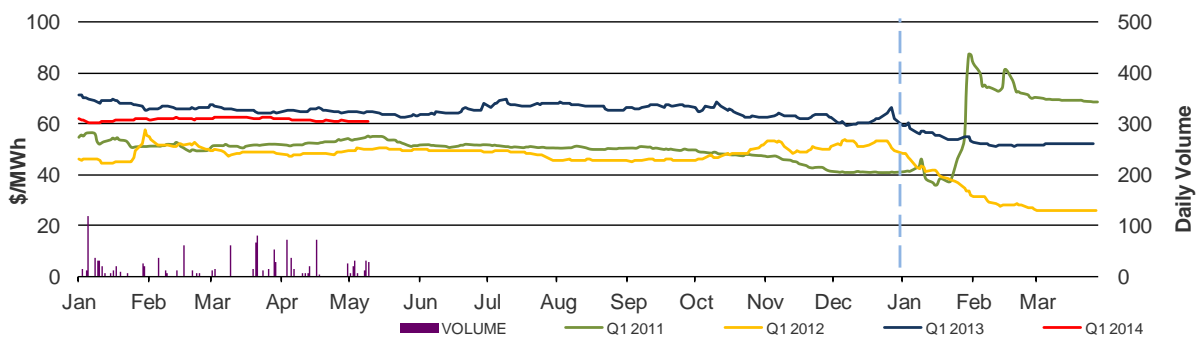
Figures 6-9 compare for each region the closing daily base contract prices for the first quarter of 2011, 2012, 2013 and 2014. Also shown is the daily volume of Q1 2014 base contracts traded. The vertical dashed line signifies the start of the Q1 period for which the contracts are being purchased.

Figure 6: Queensland Q1 2011, 2012, 2013 and 2014



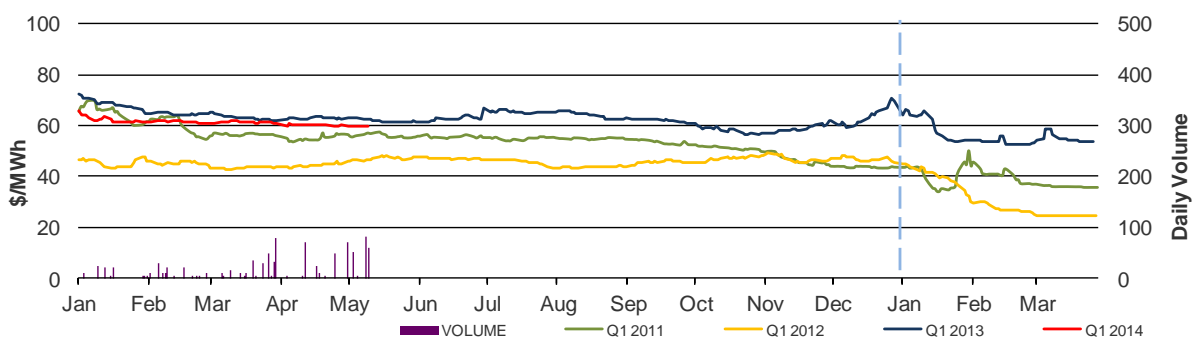
Source: d-cyphaTrade/ASX www.d-cyphatrade.com.au

Figure 7: New South Wales Q1 2011, 2012, 2013 and 2014



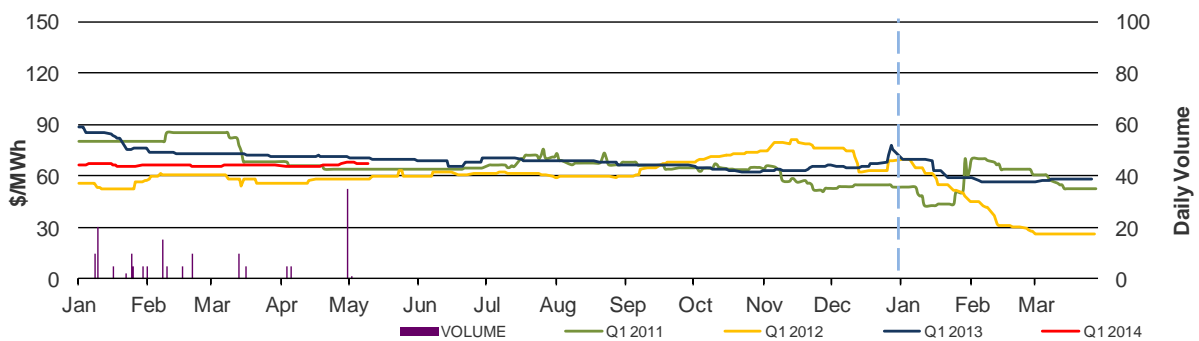
Source: d-cyphaTrade/ASX www.d-cyphatrade.com.au

Figure 8: Victoria Q1 2011, 2012, 2013 and 2014



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

Figure 9: South Australia Q1 2011, 2012, 2013 and 2014



Source: d-cyphaTrade/ASX 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 110 trading intervals throughout the week where actual prices varied significantly from forecasts.⁵ This compares to the weekly average in 2012 of 60 counts and the average in 2011 of 78. Reasons for these variances are summarised in Figure 10⁶.

Figure 10: Reasons for variations between forecast and actual prices

	Availability	Demand	Network	Combination
% of total above forecast	9	15	2	1
% of total below forecast	20	48	0	5

The total may not equal 100% due to rounding

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 periods⁷. For example, in Queensland 94 MW less 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	-94	121	96	-191
NSW	499	-450	143	151
VIC	110	-74	-70	-9
SA	51	-20	9	36
TAS	-157	-76	-98	33
TOTAL	409	-499	80	20

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.

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

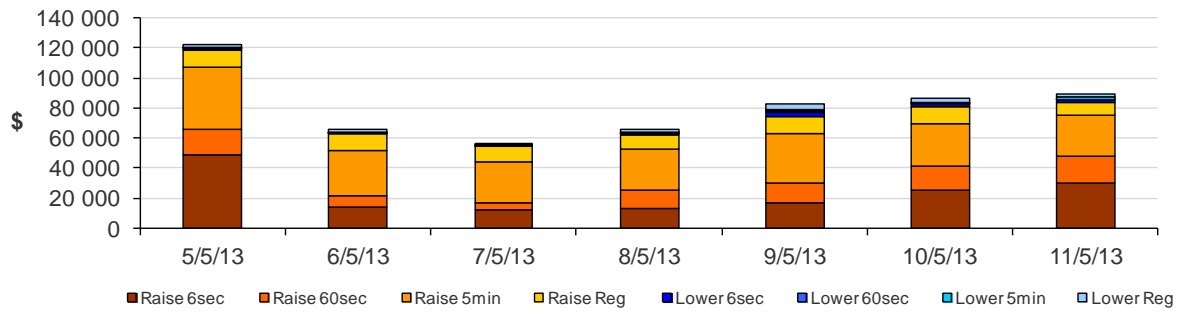
Ancillary services market

The total cost of frequency control ancillary services (FCAS) on the mainland for the week was \$530 500 or less than one per cent of energy turnover on the mainland.

The total cost of FCAS in Tasmania for the week was \$39 500 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



**Australian Energy Regulator
May 2013**



5 – 11 May 2013

South Australia:

There were two occasions where the spot price in South Australia was greater than three times the South Australia weekly average price of \$83/MWh and above \$250/MWh.

Wednesday, 8 May

11:30 AM	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	2016.29	56.76	56.81
Demand (MW)	1370	1421	1361
Available capacity (MW)	1779	1971	1931

Conditions at the time saw demand close to forecast, while available capacity was 192 MW below that forecast four hours ahead.

There was a planned outage of the Lower Tumut to Wagga 330kV line in New South Wales which was limiting imports into South Australia across Murraylink to around 100 MW at the time of the high price. Imports into South Australia across Heywood were also being limited by a system normal constrained managing flows on the Snuggery to Keith 132kV line. Imports reduced from 358 MW at 11.05 am to 217 MW at 11.10 am as the dynamic rating of the Snuggery to Keith 132kV line was changed and the constraint violated until 11.25 am. Both import limits were lower than that forecast four hours ahead.

At 8.17 am, effective from 8.25 am, AGL brought forward the shutdown of the 120 MW Torrens Island A4 to around 11 am (a majority of this capacity was priced below \$100/MWh). The reason given was “Chg in test requ::stable load reqd/test to finish earlie”.

At 11.13 am, effective from 11.20am, AGL shifted 80 MW of capacity at Torrens Island B 1 priced at around \$90/MWh to above \$11 290/MWh. The reason given was “Chg in testing reu::stable load reqd for testing”. As a result the dispatch price increased from \$300/MWh at 11.15 am to \$11 291/MWh at 11.20 am (set by Torrens Island B 1).

There was no other significant rebidding.

Thursday, 9 May

Midnight	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	302.72	45.99	47.30
Demand (MW)	1348	1368	1457
Available capacity (MW)	2047	2217	2238

Conditions at the time saw demand close to forecast, while available capacity was 170 MW below that forecast 4 hours ahead.

Throughout most of 9 May a system normal constraint managing the loss of the Snuggery to Keith 132kV line was limiting imports into South Australia to around 250 MW. This constraint also limits generation at the Lake Bonney wind farms.

The demand increased rapidly from 1236 MW at 11.30 pm to 1490 MW at 11.40 pm. This sharp increase in scheduled demand was related to off peak hot water load. With limited ramp up rate capability, high-priced capacity had to be dispatched to meet this increase in demand. As a result, the 5-minute price increased from \$46/MWh at 11.30 pm to \$75/MWh at 11.35 pm and \$300/MWh at 11.40 pm.

At 11.38 pm, effective from 11.45 pm, Infigen rebid a total of 198 MW of capacity at Lake Bonney 2 and 3 from prices between \$25/MWh and -\$30/MWh to close to the price floor. The reason given was “Mmt of V>>S_NIL_SETB_SGKH CONSTRAINT SL”. This resulted in an increase in generation at Lake Bonney which reduced the import limit across Heywood from 181 MW at 11.40 pm to 135 MW at 11.45 pm. The 5-minute price increased to \$1314/MWh at 11.45 pm.

There was no other significant rebidding.

Tasmania:

There were two occasions where the spot price in Tasmania was greater than three times the Tasmania weekly average price of \$52/MWh and above \$250/MWh.

Monday, 6 May

5:30 PM	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	600.02	43.17	112.88
Demand (MW)	1370	1361	1383
Available capacity (MW)	2260	2340	2340
6:00 PM	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	775.95	210.13	136.40
Demand (MW)	1373	1437	1467
Available capacity (MW)	2227	2340	2340

A planned outage on the George Town to Sheffield 220kV line saw constraints affecting generation throughout the region and forcing exports to Victoria across Basslink.

The only generators not affected by the planned outage were the Tamar Valley stations.

- At 3.38 pm, Aurora Energy reduced the availability of its Tamar Valley OCGT unit, from 58 MW to zero (priced at \$210/MWh). The reason given was “15:38 P unit oos – gas control valve problem sl”. The unit had received a target to start but did not come online.
- At around 5.20 pm Bell Bay Three power station unit 1 tripped, and effective from 5.30 pm, Aurora reduced its availability to zero, from 40 MW (priced at the floor). The reason given was “17:19 P UNIT TRIP SL”.

As a result of the loss of Bell Bay Three unit 1, network constraints violated for one dispatch interval and the dispatch price spiked to \$2569/MWh at 5.30 pm.

The price fell at 5.35 pm, but increased the following dispatch interval to \$4279/MWh.

A number of generators were ramp down constrained or stranded/trapped in FCAS at the time.

There was no other significant rebidding.

Detailed NEM Price and Demand Trends

for Weekly Market Analysis

5 May - 11 May 2013

**Table 1: Financial year to date spot market volume weighted average price**

Financial year	QLD	NSW	VIC	SA	TAS
2012-13 (\$/MWh) YTD	71	56	61	66	49
2011-12 (\$/MWh) YTD	30	30	27	32	33
Change*	139%	87%	121%	105%	49%
2011-12 (\$/MWh)	30	31	28	32	33

Table 2: NEM turnover

Financial year	NEM Turnover** (\$, billion)	Energy (TWh)
2012-13 YTD	10.274	167
2011-12	5.987	199
2010-11	7.445	204

Table 3: Recent monthly and quarterly spot market volume weighted average price and turnover

Volume weighted average (\$/MWh)	QLD	NSW	VIC	SA	TAS	Turnover (\$, billion)
January-13	170	51	60	68	57	1.489
February-13	60	53	56	63	46	0.855
March-13	76	53	55	62	50	0.986
April-13	56	55	51	80	45	0.836
May-13 MTD	58	57	52	77	48	0.322
Q2 2013 QTD	57	55	51	79	46	1.158
Q2 2012 QTD	29	33	32	30	36	0.678
Change*	96%	67%	59%	162%	27%	0.709

Table 4: ASX energy futures contract prices at end of 10 May 2013

	QLD		NSW		VIC		SA	
	Base	Peak	Base	Peak	Base	Peak	Base	Peak
Q1 2014								
Price on 3 May (\$/MWh)	70	87	61	74	60	78	68	92
Price on 10 May (\$/MWh)	69	88	61	73	60	77	67	92
Open Interest on 10 May (\$/MWh)	753	95	1251	230	727	245	104	35
Traded in the last week (MW)	15	0	102	15	146	100	0	0
Traded since 1 Jan 13 (MW)	1163	66	1221	430	955	300	158	35
Settled price for Q1 13 (\$/MWh)	97	110	52	54	53	62	58	69

Table 5: Changes to availability of low priced generation capacity offered to the market

Comparison:	QLD	NSW	VIC	SA	TAS	NEM
March 13 with March 12						
MW Priced \$20/MWh	-4598	-1294	-810	99	-386	-6989
MW Priced \$20/MWh to \$50/MWh	2509	-548	1060	-290	353	3084
April 13 with April 12						
MW Priced \$20/MWh	-4017	-164	-415	-348	-316	-5259
MW Priced \$20/MWh to \$50/MWh	2269	-1179	951	-513	284	1811
May 13 with May 12 MTD						
MW Priced \$20/MWh	-3923	-1005	-57	-574	-36	-5594
MW Priced \$20/MWh to \$50/MWh	2220	-1495	-76	-603	231	277

*Note: These percentage changes are calculated on VWA prices prior to rounding

** Estimated value