

WEEKLY ELECTRICITY MARKET ANALYSIS



AUSTRALIAN ENERGY
REGULATOR

18 April – 24 April 2010

Summary

On Thursday 22 April, the Victorian spot price exceeded \$5000/MWh on seven occasions. This resulted in the weekly average spot price for Victoria of \$271/MWh. In accordance with Under clause 3.13.7 of the Electricity Rules, the AER is required to issue a separate report into the circumstances that led to the spot price exceeding \$5000/MWh.

Average spot prices for the other regions were \$23/MWh in Queensland and Tasmania, \$24/MWh in New South Wales and \$47/MWh in South Australia. On 21 and 22 April the prices for lower frequency control ancillary services in South Australia exceeded \$5000/MW for sustained periods. Under clause 3.13.7 of the Electricity Rules the AER is required to prepare a separate report into these events.

Spot market prices

Figure 1 sets out the volume weighted average prices for the week 18 April to 24 April 2010 and the financial year to date 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 18 April – 24 April 2010	23	24	271	47	23
% change from previous week*	5	-28	926	51	-8
09/10 financial YTD	41	57	45	94	27
% change from 08/09 financial YTD**	9	29	-15	23	-45

*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 to date and the average spot price over the similar period for the previous financial year. Percentage changes are calculated on VWA prices prior to rounding.

The AER provides further information if the spot price exceeds three times the weekly average and is above \$250/MWh. Details of these events are attached in Appendix A. Longer term market trends are attached in Appendix B¹.

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 -> Monitoring, reporting and enforcement -> Electricity market reports -> Long-term analysis.

Financial markets

Figures 2 to 9 show futures contract² prices traded on the Sydney Futures Exchange (SFE) as at close of trade on Friday 23 April 2010. Figure 2 shows the base futures contract prices for the next three calendar years, and the three year average. Also shown are percentage changes³ compared to the previous week.

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

	QLD		NSW		VIC		SA	
Calendar Year 2011	35*	0%	43	1%	39*	2%	43	-1%
Calendar Year 2012	43	-1%	47	-2%	47	0%	69	0%
Calendar Year 2013	58	0%	61	0%	66	0%	69	0%
Three year average	45	0%	50	0%	51	1%	61	0%

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

* denotes trades in the product.

Figure 3 shows the \$300 cap contract price for the first quarter of 2011 and the 2011 calendar year and the percentage change⁴ from the previous week.

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

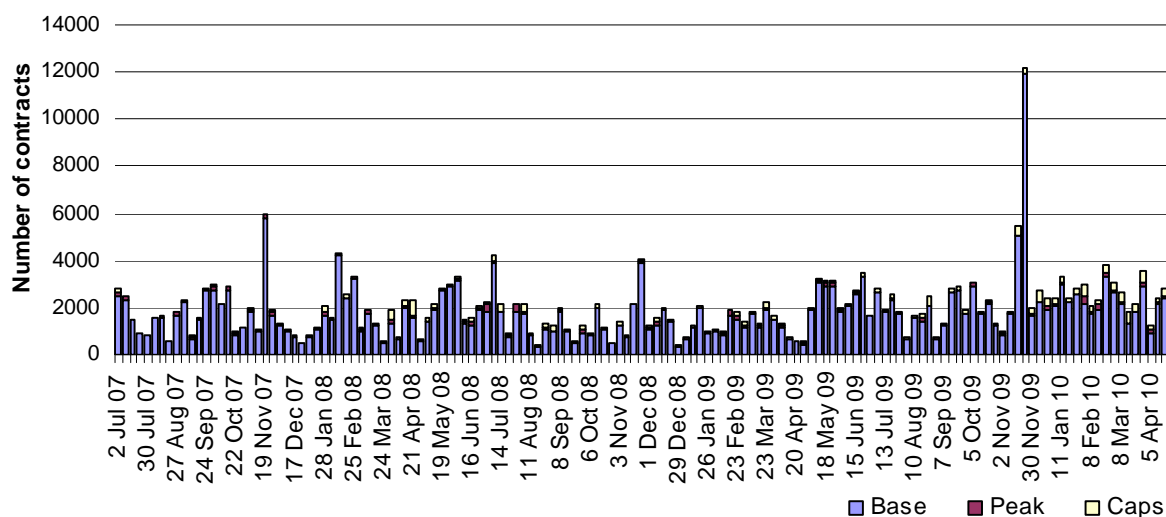
	QLD		NSW		VIC		SA	
Q1 2011 (% Change)	20	0%	22	0%	27	4%	37	-7%
2011 (% Change)	9	-1%	13	6%	11	2%	13	-7%

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

There were no 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: d-cyphaTrade www.d-cyphatrade.com.au

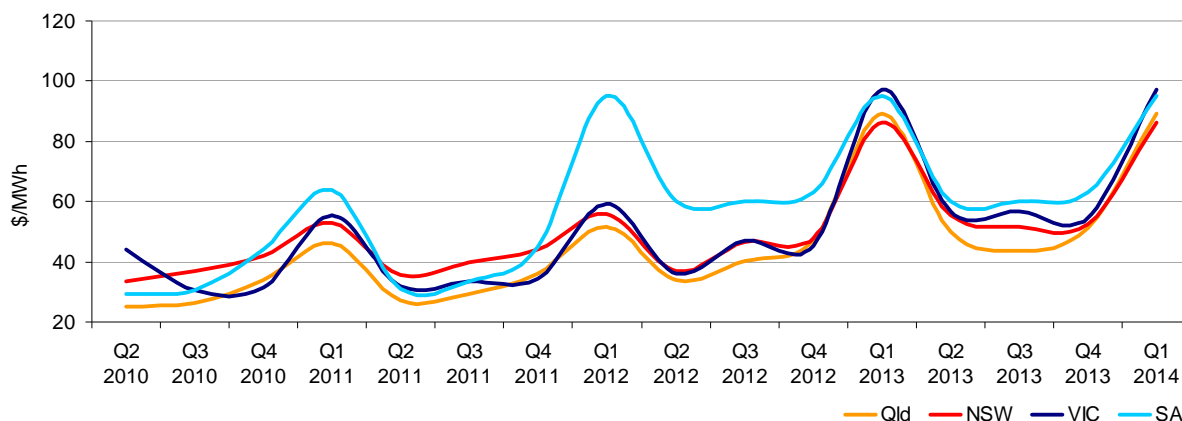
² Futures contracts on the SFE are listed by d-cyphaTrade (www.d-cyphatrade.com.au). A futures contract is typically for one MW of electrical energy per hour based on a fixed load profile. A base load profile is defined as the base load period from midnight to midnight Monday to Sunday over the duration 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.

⁴ Calculated on prices prior to rounding.

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

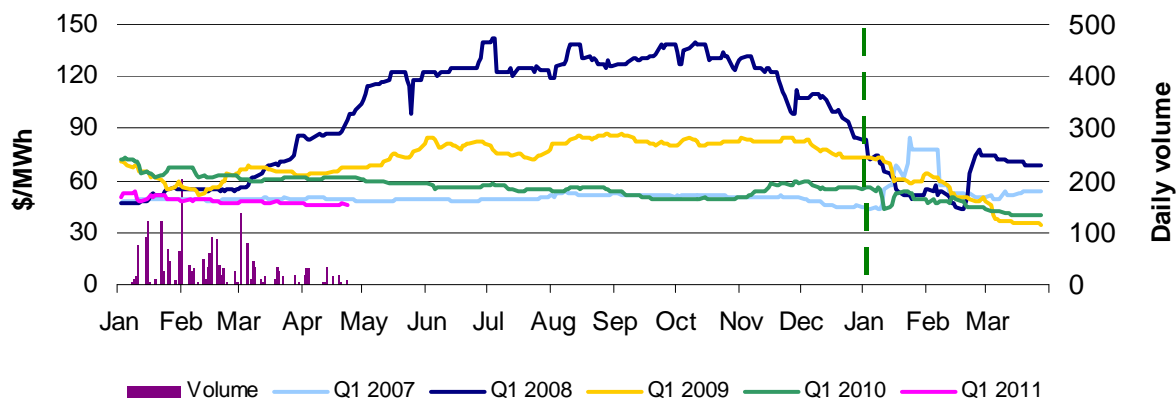
Figure 5: Quarterly base future prices Q2 2010 – Q1 2014



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

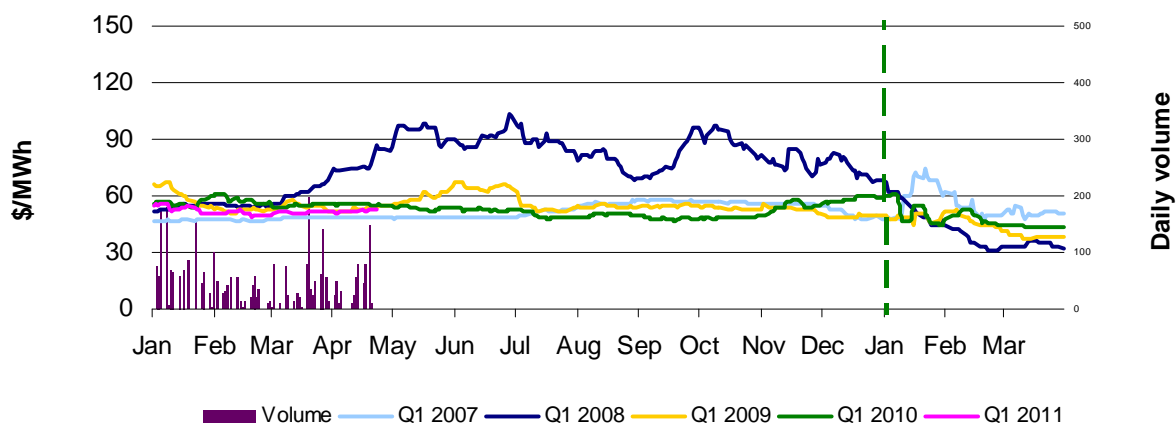
Figures 6-9 compare for each region the closing daily base contract prices for the first quarter of 2007, 2008, 2009, 2010 and 2011. Also shown is the daily volume of Q1 2011 base contracts traded. The vertical dashed line signifies the start of the Q1 period for which the contracts are being purchased. To understand the diagrams, the dark-blue line demonstrates that throughout the middle of 2007, the market had an expectation of very high spot prices in the first quarter of 2008.

Figure 6: Queensland Q1 2007, 2008, 2009, 2010 and 2011



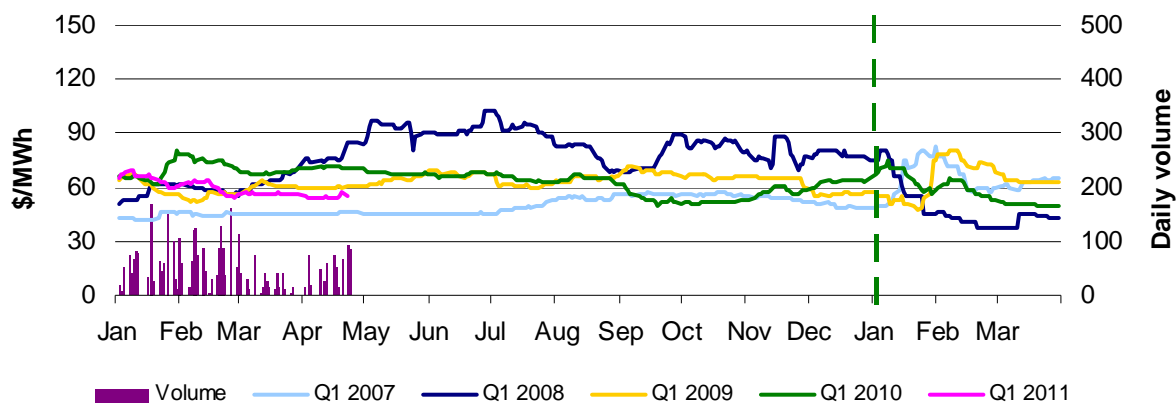
Source: d-cyphaTrade www.d-cyphatrade.com.au

Figure 7: New South Wales Q1 2007, 2008, 2009, 2010 and 2011



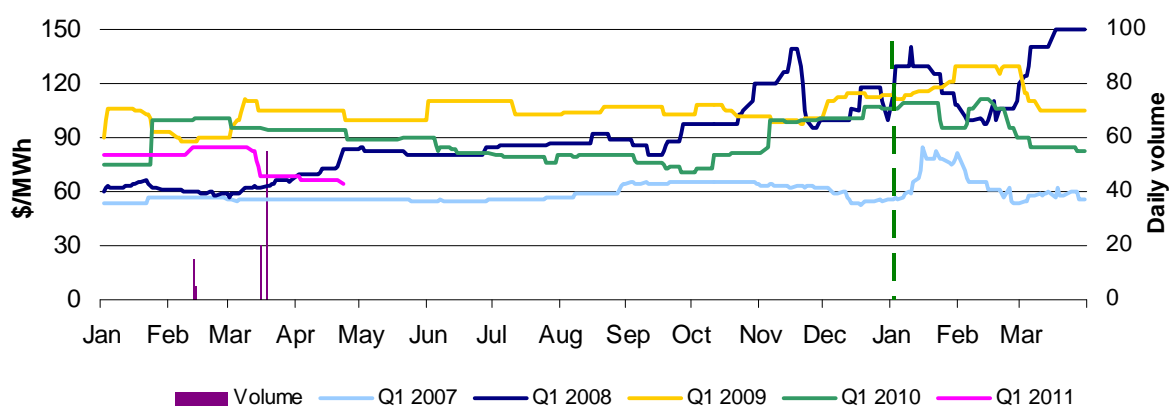
Source: d-cyphaTrade www.d-cyphatrade.com.au

Figure 8: Victoria Q1 2007, 2008, 2009, 2010 and 2011



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

Figure 9: South Australia Q1 2007, 2008, 2009, 2010 and 2011



Source: 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.
 **This graph was modified on 23/7/2010 to correct an error in the original report.

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 327 trading intervals throughout the week where actual prices varied significantly from forecasts⁵. This compares to the weekly average in 2009 of 103 counts. 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	0	62	0	0
% of total below forecast	37	0	1	0

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.

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 527 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	-527	-55	-725	-95
NSW	416	7	681	304
VIC	455	-247	354	181
SA	176	-2	197	42
TAS	-114	159	83	26
TOTAL	406	-138	590	458

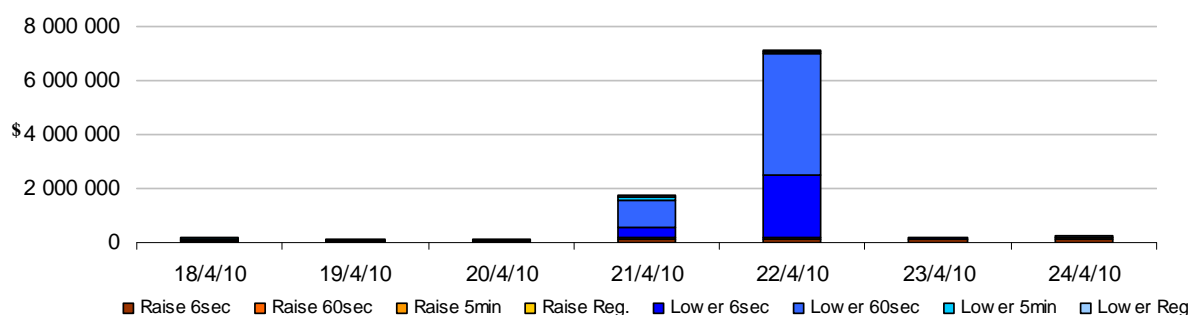
Ancillary services market

The total cost of frequency control ancillary services (FCAS) on the mainland for the week was \$9 million or close to three per cent of energy turnover. Most of this cost accrued on 21 and 22 April, when a constraint used to manage an outage of one Moorabool to Sydenham line (part of the Heywood interconnector) led to high requirements and prices for South Australian sourced lower FCAS. There were 94 dispatch intervals of local lower services in South Australia being above \$5000/MW, over the two days. Under clause 3.13.7 (e) of the National Electricity Rules, the AER is required to publish a separate report into the circumstances that led to the FCAS prices exceeding \$5000/MW.

The continued outage of the Basslink interconnector saw the total cost of FCAS in Tasmania for the week reach \$261 000, almost 17% of energy turnover in Tasmania. Raise 6-second prices in Tasmania reached up to \$80/MW compared to the previous week's high of \$24/MW.

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 2010

⁷ A peak period is defined as between 7 am and 10 pm on weekdays, which aligns with the SFE contract definition.

Detailed Market Analysis



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Victoria:

There were twelve occasions where the spot price in Victoria was greater than three times the Victoria weekly average price of \$270/MWh and above \$250/MWh.

Wednesday, 21 April

12:30 pm

	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	2093.38	27.32	282.22
Demand (MW)	6674	6592	6734
Available capacity (MW)	8793	8787	8474

1pm

	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	1719.58	21.48	34.70
Demand (MW)	6691	6677	6725
Available capacity (MW)	8803	8784	8474

1:30 pm

	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	1623.71	30.88	393.31
Demand (MW)	6661	6708	6797
Available capacity (MW)	8831	8788	8474

2 pm

	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	1927.84	287.51	515.57
Demand (MW)	6700	6672	6830
Available capacity (MW)	8896	8788	8474

The 5-minute dispatch price spiked to \$1574/MWh at 12.15 pm to almost \$10 000/MWh at 12.30 pm, 12.35 pm, 1.30 pm and 1.35 pm, and \$1174/MWh at 1.40 pm. Imports were reduced below normal levels as a result of planned outages affecting the Heywood and Vic-NSW interconnectors and an unplanned outage of Basslink.

Constraints invoked to manage planned outages of the Eildon to Mt Beauty No. 1 line and one of the Dederang to South Morang lines reduced the capability for imports from New South Wales and South Australia across Murraylink, and for dispatch from generators in northern Victoria (Murray, Hume and West Kiewa). The constraint aims to avoid the overload of the Eildon to Mt Beauty No. 2 line in the event of the trip of the remaining Dederang to South Morang line.

The higher than forecast prices occurred due to rebidding of low-priced capacity into higher prices:

- At 8.39 am, effective from 12.05 pm, International Power rebid a total of 228 MW at its Loy Yang B and Hazelwood Power Stations from prices below \$15/MWh to above \$9600/MWh. The reason given was “0838A change/increase in Vic available capacity sl”. A further rebid at 10.39 am, effective from 10.45 am, reduced the available capacity of Hazelwood Power Station unit five by up to 120 MW (all of which was priced below zero). The reason given was “1038P unit outage – bearing replacement on rah”.
- At 1.17 pm, effective from 1.25 pm, Snowy Hydro rebid 177 MW of capacity at its Laverton Power Station from prices below \$300/MWh to above \$9900/MWh. The reason given was “13:16:A V-NSW discretionary const removed sl”. A further rebid at 1.28 pm shifted the same amount of capacity between these price bands for the 2 pm trading interval, citing the reason “13:16:A Vic prices hghr thn prev fcast”.
- At 1.35 pm, effective from 1.45 pm, AGL shifted 90 MW at its Torrens Island B Power Station from \$25/MWh to the price cap. The reason given was “13:35A unfcast network constraint: multiple SA1 lhs <=0 (wt=3”.

At 11.28 am, effective from 11.35 am, Snowy Hydro reduced the ramp down rate at its Murray Power Station from 200MW/min down to the minimum allowed of 3MW/min, citing the reason as “11:27:A fcast Murray disptch lwr thn prev fcast”. Subsequent rebids shifted all 1500 MW of capacity at Murray into negative prices, with reasons given including “11:46 A VIC-NSW: 5mpd flow 79 lwr thn 5mpd 12:00@11:41” and “Manage 30/5 min settlement”.

The Murray generator is located in the Victorian region and receives the Victoria price. Murray is located north of the Dederang to South Morang lines. When Snowy Hydro rebid capacity at Murray into negative prices (which was lower than the NSW or SA region prices), its capacity was dispatched. To maintain system security, the network constraint would not allow this output to be dispatched south, and instead it was forced into New South Wales and South Australia. The very low offer price meant that Murray was dispatched in preference to generators in NSW and SA. This resulted in counter price flows across interconnectors into NSW. AEMO invoked constraints to minimise the accumulation of negative settlement residues into South Australia and New South Wales.⁸

At 12.18 pm, effective from 12.25 pm, Eraring Energy reduced the ramp down rate at its Hume Power Station by 10MW/min to zero due to “1213P irrigation requirements unchanged – cannot back off gen”.

At 1.25 pm, AGL Hydro reduced the ramp down rates at its West Kiewa Power Station from 10 MW/min down to the minimum allowed of 3 MW/min. All of its available capacity was offered at negative prices. The reason given was “1315A network constraint::N>V-X_EPBM_DD SM_1B”. Then at 1.27 pm, AGL Hydro reduced the ramp down rates at its McKay Power Station unit one from 20 MW/min down to the minimum allowed of 3 MW/min.

There was no other significant rebidding.

⁸ The Hume and West Kiewa Power Stations are also located in the Victorian region north of the out of service transmission lines. Rebidding at these stations had a similar but much smaller effect to the Snowy rebids, as the Hume and West Kiewa Power Stations comprise less than 100 MW in capacity compared to the 1500 MW Murray generator.

Thursday, 22 April

12:30 pm	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	5022.42	36.55	30.34
Demand (MW)	6862	6864	6788
Available capacity (MW)	8878	8920	8985
1:00 pm	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	9997.78	36.55	29.68
Demand (MW)	6799	6881	6815
Available capacity (MW)	8830	8910	8985
1:30 pm	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	5003.82	187.00	32.30
Demand (MW)	6685	6932	6866
Available capacity (MW)	8837	8914	8985
2:00 pm	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	1750.82	515.57	36.64
Demand (MW)	6673	6973	6904
Available capacity (MW)	8866	8927	8985
2:30 pm	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	8382.58	515.57	36.68
Demand (MW)	6847	6973	6898
Available capacity (MW)	8902	8927	8985
3:00 pm	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	9998.59	36.55	36.60
Demand (MW)	6900	6939	6869
Available capacity (MW)	8871	8927	8985

Thursday, 22 April cont ...

3:30 pm	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	9997.70	9998.19	29.49
Demand (MW)	6848	6883	6808
Available capacity (MW)	8863	8870	8985
4:00 pm	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	9998.23	165.00	28.59
Demand (MW)	6783	6809	6745
Available capacity (MW)	8863	8925	8985

The AER is required under clause 3.13.7 of the Electricity Rules to issue a separate report into the circumstances that led to the spot price exceeding \$5000/MWh on each of these occasions.

South Australia:

There were three occasions where the spot price in South Australia was greater than three times the South Australia weekly average price of \$47/MWh and above \$250/MWh.

Wednesday, 21 April

12:30 pm	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	290.07	27.91	250.78
Demand (MW)	1799	1762	1770
Available capacity (MW)	2346	2378	2310
1:30 pm	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	1167.50	29.98	250.78
Demand (MW)	1828	1786	1790
Available capacity (MW)	2319	2387	2390
2:00 pm	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	3210.73	250.78	335.36
Demand (MW)	1850	1812	1814
Available capacity (MW)	2318	2364	2386

Prices outcomes in South Australia were impacted by the conditions in Victoria. In addition, there were high requirements for local ancillary services, causing the prices for these services to exceed \$5000/MW, which also impacted energy prices. Under the Electricity Rules, the AER is required to prepare a separate report into this incident.

Detailed NEM Price and Demand Trends

for Weekly Market Analysis
18 April - 24 April 2010



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

Financial year	QLD	NSW	VIC	SA	TAS
2009-10 (\$/MWh) (YTD)	41	57	45	94	27
2008-09 (\$/MWh) (YTD)	37	44	53	76	49
Change*	9%	29%	-15%	23%	-45%
2008-09 (\$/MWh)	36	43	49	69	62

Table 2: NEM turnover

Financial year	NEM Turnover** (\$, billion)	Energy (TWh)
2009-10 (YTD)	\$8.495	168
2008-09	\$9.413	208
2007-08	\$11.125	208

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)
Dec-09	34	130	25	26	32	1.066
Jan-10	67	63	88	160	30	1.336
Feb-10	45	66	90	213	23	1.235
Mar-10	25	27	24	25	26	0.443
Apr-10 (MTD)	22	26	98	32	24	0.549
Q1 2010	46	52	67	134	27	3.014
Q1 2009	37	43	87	161	55	3.136
Change*	24%	20%	-23%	-17%	-52%	-3.89%

Table 4: ASX energy futures contract prices at end of 19 April

	QLD		NSW		VIC		SA	
	Base	Peak	Base	Peak	Base	Peak	Base	Peak
Q1 2011								
Price on 19 Apr (\$/MW)	46	80	52	86	55	98	66	100
Price on 19 Apr (\$/MW)	46	79	53	89	55	102	64	100
Open interest on 23 Apr	1895	117	2899	90	3305	20	45	0
Traded in the last week (MW)	31	35	160	5	242	0	0	0
Traded since 1 Jan 10 (MW)	2041	83	3237	70	3557	20	95	0
Settled price for Q1 10(\$/MW)	40	65	44	68	50	89	83	160

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

Comparison:	QLD	NSW	VIC	SA	TAS	NEM
February 10 with February 09						
MW Priced <\$20/MWh	1044	-637	26	311	100	844
MW Priced \$20 to \$50/MWh	-588	696	-285	160	673	655
March 10 with March 09						
MW Priced <\$20/MWh	943	-1063	101	386	-6	361
MW Priced \$20 to \$50/MWh	-482	632	117	-164	596	699
April 10 with April 09 - MTD						
MW Priced <\$20/MWh	950	-85	-41	140	112	1076
MW Priced \$20 to \$50/MWh	-666	815	361	-236	680	955

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

** Estimated value