WEEKLY ELECTRICITY MARKET ANALYSIS

AUSTRALIAN ENERGY REGULATOR

15 – 21 November 2009

Summary

For the second consecutive week spot prices exceeded $5000/MWh in South Australia. On Thursday high demand driven by a maximum temperature of 42 degrees saw the spot price reach $10 000/MWh in South Australia for five trading intervals, with two other prices at $8396/MWh and $6999/MWh. High prices also occurred in all other mainland regions on the same day.

On Friday high temperatures in New South Wales and Queensland led to high demand in both regions. The spot prices in both regions exceeded $5000/MWh for a total of ten trading intervals on the day. Tight supply-demand conditions in New South Wales saw AEMO issue directions to participants to maintain a reliable operating state.

In accordance with clause 3.13.7 of the National Electricity Rules, the AER will issue reports into the circumstances that led to the spot prices exceeding $5000/MWh.

Spot market prices

Figure 1 sets out the volume weighted average prices for the week 15 to 21 November 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 15 – 21 November	187	315	51	442	35
% change from previous week*	643	1005	24	-31	-10
09/10 financial YTD	36	45	27	95	26
% change from 08/09 financial YTD**	-7	-11	-34	134	-44

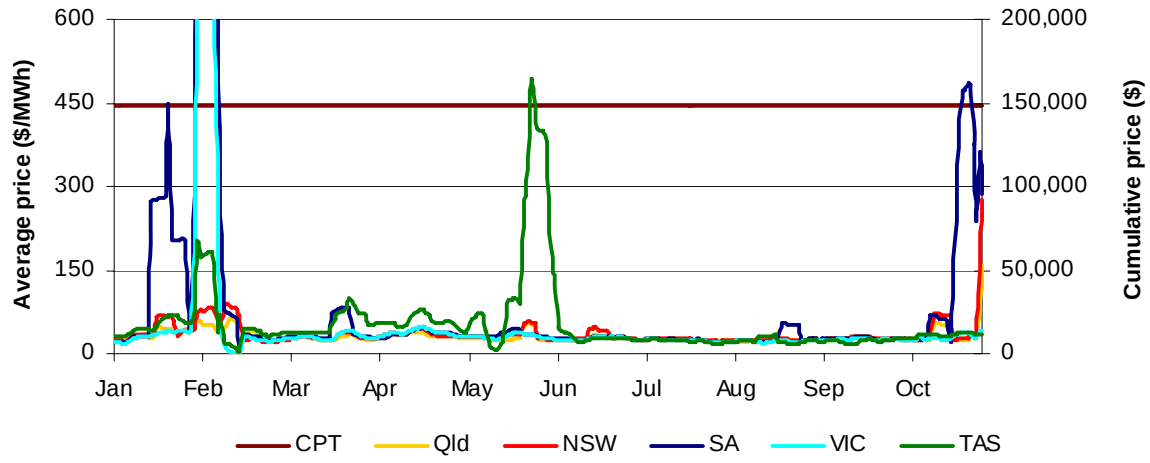
*The percentage change between last week's average spot price and the average price for the previous week. Calculated on VWA prices prior to rounding.
**The percentage change between the average spot price for the current financial year to date and the average spot price over the similar period for the 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 B[1].

Figure 2 shows the seven day rolling cumulative price for each region in 2009 together with the CPT (and the equivalent seven day time-weighted average price).

[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.

Figure 2: Seven day rolling cumulative price and CPT



Financial markets

Figures 3 to 10 show futures contract[2] prices traded on the Sydney Futures Exchange (SFE) as at close of trade on Monday 23 November. Figure 2 shows the base futures contract prices for the next three calendar years, and the three year average. Also shown are percentage changes[3] compared to the previous week.

Figure 3: Base calendar year futures contract prices ($/MWh)

	QLD		NSW		VIC		SA	
Calendar Year 2010	40*	3%	44*	4%	44*	4%	55	0%
Calendar Year 2011	42*	1%	46*	3%	46*	2%	54	0%
Calendar Year 2012	48*	0%	51	0%	53	0%	69	0%
Three year average	43	1%	47	2%	48	2%	59	0%

Source: d-cyphaTrade www.d-cyphatrade.com.au
* denotes trades in the product.

Figure 4 shows the $300 cap contract price for the first quarter of 2010 and the 2010 calendar year and the percentage change[4] from the previous week.

Figure 4: $300 cap contract prices ($/MWh)

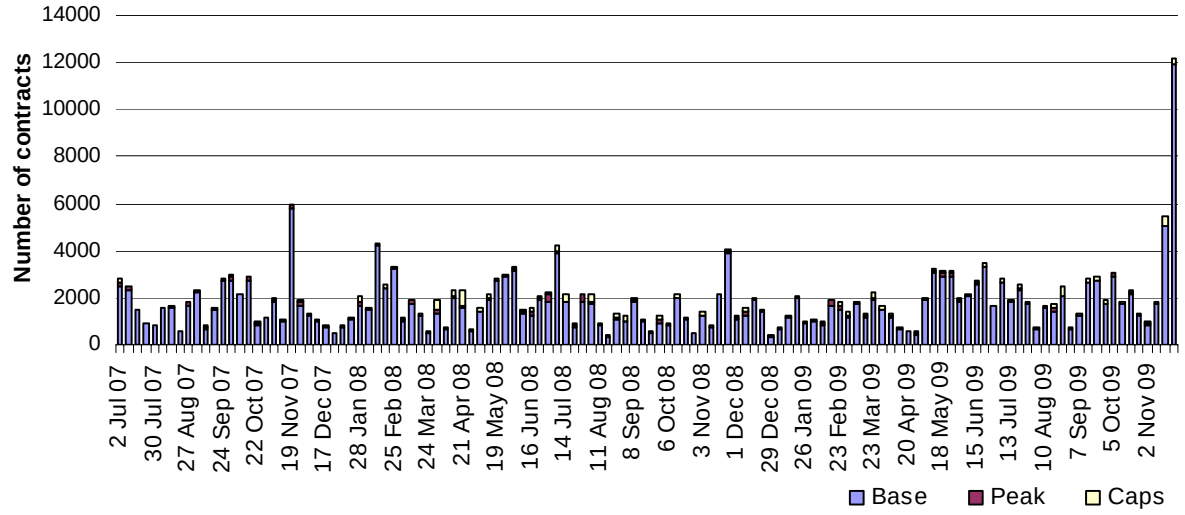
	QLD		NSW		VIC		SA	
Q1 2010 (% Change)	29*	16%	26*	5%	28*	4%	42	0%
2010 (% Change)	12	9%	13	19%	11	4%	14	-1%

Source: d-cyphaTrade www.d-cyphatrade.com.au
* denotes trades in the product.

Figure 5 shows the weekly trading volumes for base, peak and cap contracts. The date represents the end of the trading week.

[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.

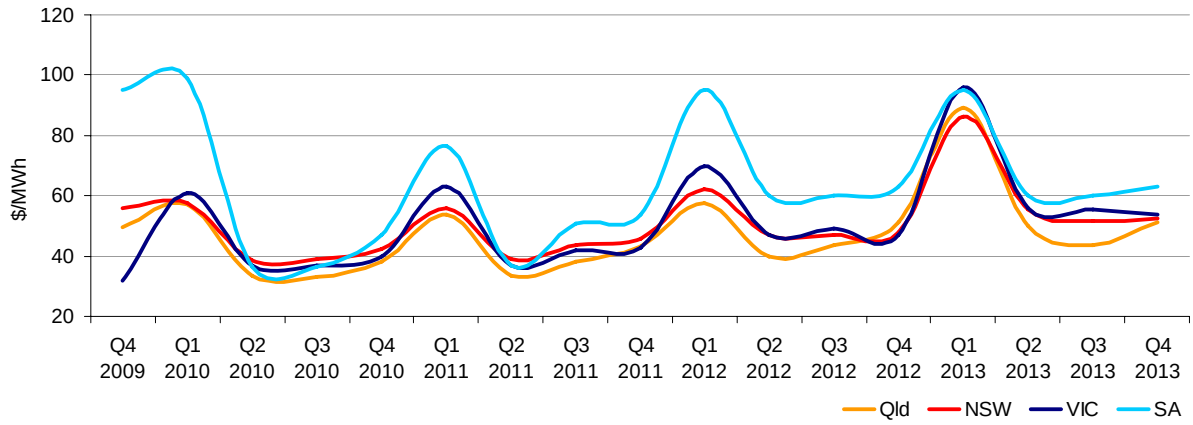
Figure 5: Number of exchange traded contracts per week



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

Figure 6 shows the prices for base contracts for each quarter for the next four financial years.

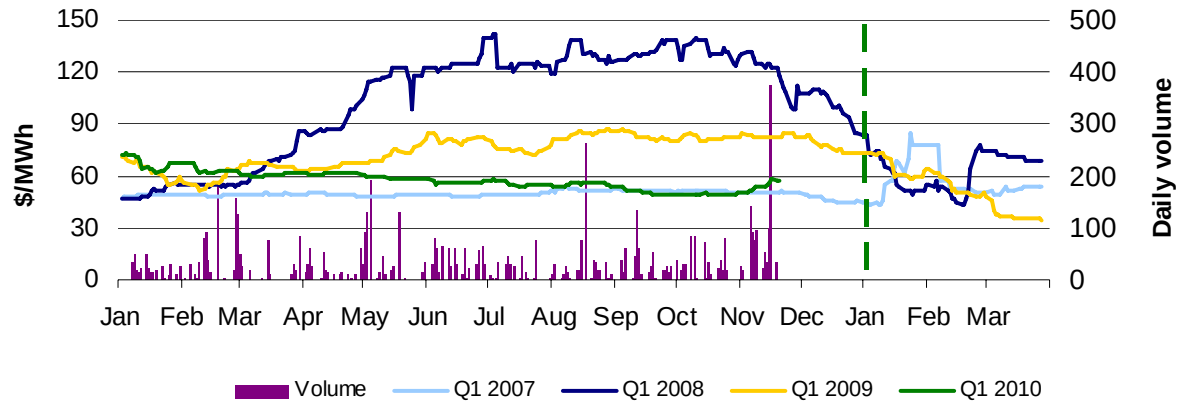
Figure 6: Quarterly base future prices Q4 2009 – Q3 2013



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

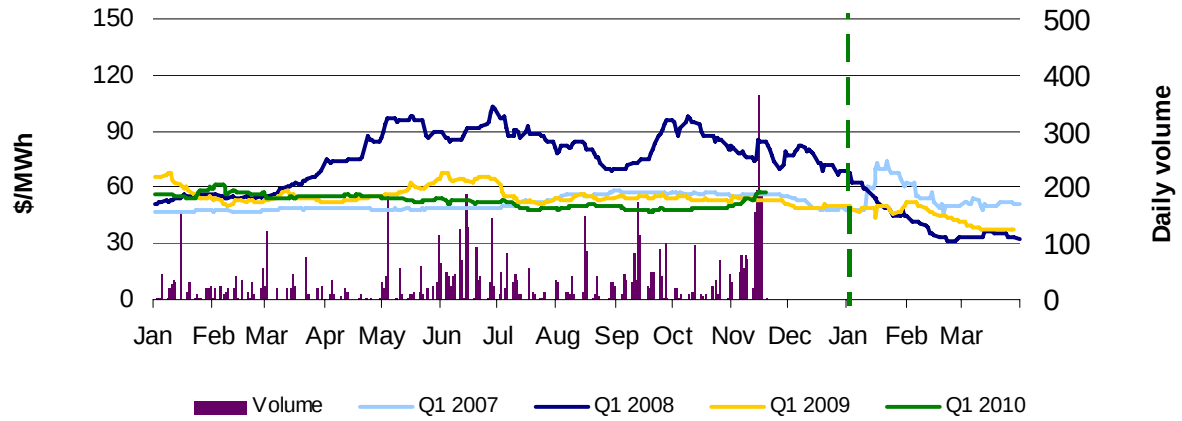
Figures 7-10 compare for each region the closing daily base contract prices for the first quarter of 2007, 2008, 2009 and 2010. Also shown is the daily volume of Q1 2010 base contracts traded. The vertical dashed line signifies the start of the Q1 period for which the contracts are being purchased. To 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 7: Queensland Q1 2007, 2008, 2009 and 2010



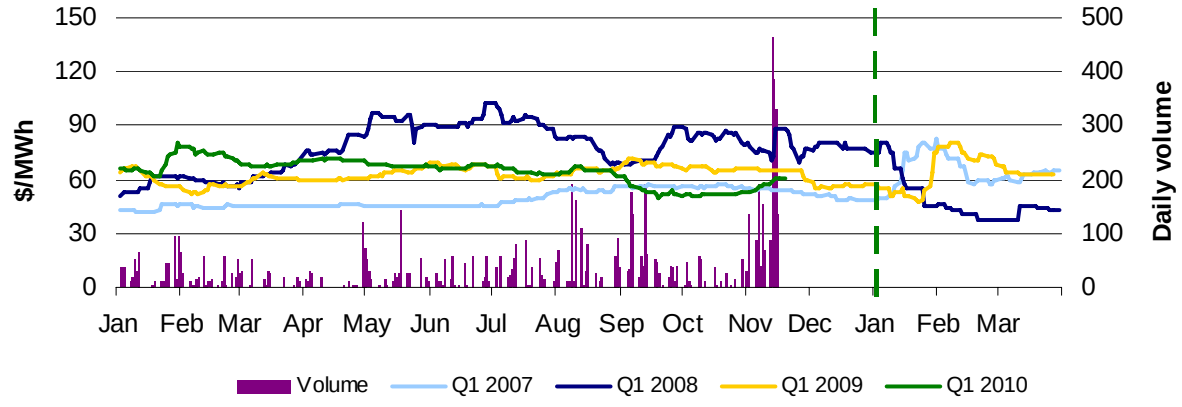
Source: d-cyphaTrade www.d-cyphatrade.com.au

Figure 8: New South Wales Q1 2007, 2008, 2009 and 2010



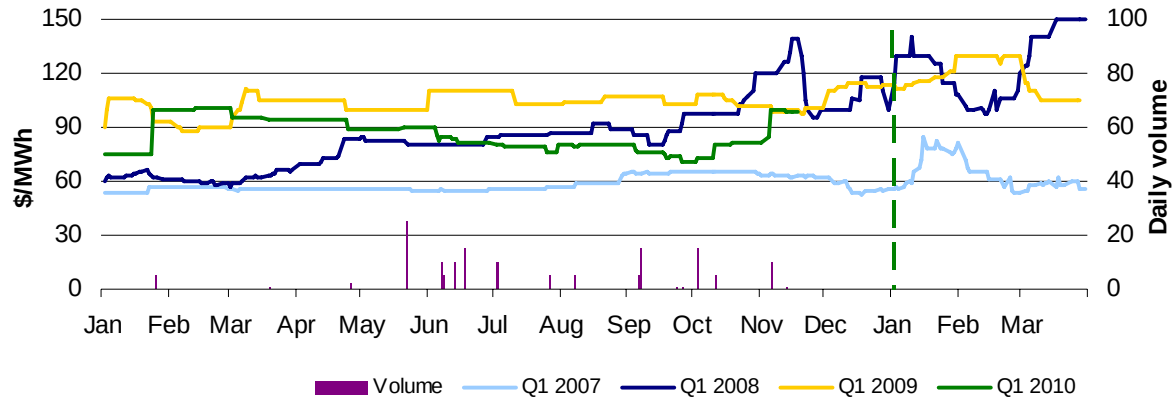
Source: d-cyphaTrade www.d-cyphatrade.com.au

Figure 9: Victoria Q1 2007, 2008, 2009 and 2010



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

Figure 10: South Australia Q1 2007, 2008, 2009 and 2010



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.

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 210 trading intervals throughout the week where actual prices varied significantly from forecasts[5]. This compares to the weekly average in 2008 of 130 counts. Reasons for these variances are summarised in Figure 11[6].

Figure 11: Reasons for variations between forecast and actual prices

	Availability	Demand	Network	Combination
% of total above forecast	2	28	0	6
% of total below forecast	39	22	0	3

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 12 shows the weekly change in total available capacity at various price levels during peak periods[7]. For example, in Queensland 326 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.

[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, which aligns with the SFE contract definition.

Figure 12: 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	326	15	455	852
NSW	-400	267	-254	822
VIC	340	74	132	-676
SA	-16	-138	-85	-445
TAS	-9	-140	-19	-35
TOTAL	241	78	229	518

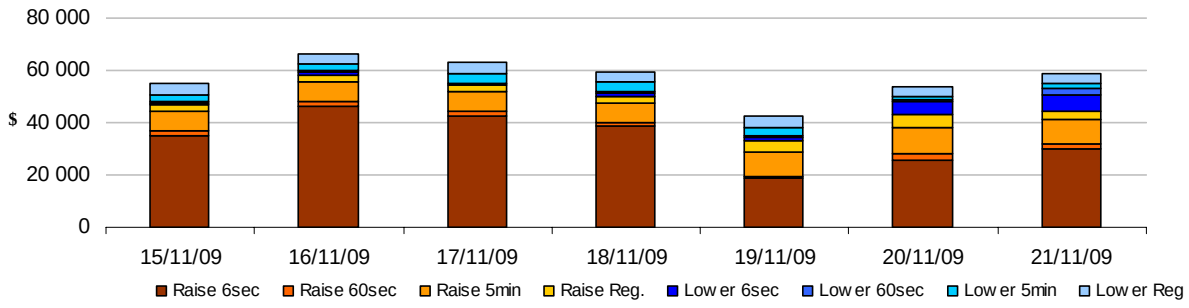
Ancillary services market

The total cost of frequency control ancillary services (FCAS) on the mainland for the week was $138 000 or less than one per cent of energy turnover on the mainland.

The total cost of FCAS in Tasmania for the week was $263 000 or about four per cent of energy turnover in Tasmania.

Figure 13 shows the daily breakdown of cost for each FCAS for the NEM.

Figure 13: Daily frequency control ancillary service cost



Australian Energy Regulator
December 2009

National: There were four occasions where the spot price aligned nationally and the New South Wales price was greater than three times the New South Wales weekly average price of $315/MWh (which is also above $250/MWh). The New South Wales spot price is used as a proxy national price under these conditions as New South Wales is located in the centre of the NEM.

Thursday, 19 November

3:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	4500.80	290.47	306.57
Demand (MW)	33 224	33 354	33 303
Available capacity (MW)	38 793	38 951	38 879
3:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	2908.97	290.35	8211.67
Demand (MW)	33 245	33 627	33 504
Available capacity (MW)	38 610	39 019	38 924
4:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	3505.58	293.25	8750.01
Demand (MW)	33 253	33 670	33 718
Available capacity (MW)	38 701	38 991	38 903
4:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	2649.10	288.96	7594.38
Demand (MW)	33 077	33 117	33 567
Available capacity (MW)	38 608	38 949	38 894

Conditions at the time saw national demand and available capacity close to that forecast.

Prices for the 3.30 pm to 4.30 pm trading intervals were above $7000/MWh 12 hours ahead of dispatch and then decreased to below $300/MWh four hours ahead of dispatch. Rebidding contributed to the reduction in forecast price. At 8.31 am, Delta Electricity increased the available capacity at Colongra unit one by 181 MW, 110 MW of which was priced below zero. This rebid was applied for the 3 pm to 5 pm trading intervals. The reason given was "0827F Price higher than first predispatch::cap chg, band shift".

Rebids closer to dispatch led to an increase in prices compared to that forecast.

At 10.20 am, Eraring Energy rebid 220 MW of capacity at Eraring unit two from prices below $22/MWh to above $9740/MWh. The reason given was "P: Economiser Tube leak @ 10:07". The rebid applied for the 3 pm to 4.30 pm trading intervals.

At 12.12 pm and 2.23 pm Delta Electricity rebid 300 MW of capacity across Vales Point unit five and Mount Piper unit one from prices below $289/MWh to prices above $8600/MWh. The reasons given were "1212N unexpected interconnector line constraint::band shift" and "1423F VIC-NSW interconnector limit not in predis::band shift".

At 1.49 pm, Macquarie generation rebid 360 MW of capacity across the four Bayswater units and Liddell units one and two from prices below $270/MWh to prices above $4780/MWh. The reason given was “Load expected to vary from predispatch”. This rebid applied for the 3 pm to 4.30 pm trading intervals.

A market notice from AEMO at 2.16 pm forecast a lack of reserve level two in New South Wales from 3 pm to 4.30 pm. This means that the loss of the largest generator in the region would have required customer load to be interrupted.

There was no other significant rebidding.

Queensland: There were 11 occasions where the spot price in Queensland was greater than three times the Queensland weekly average price of $187/MWh (which is also above $250/MWh). Four of these occurred when prices were generally aligned across all regions and is detailed in the national market outcomes section. The remaining seven occasions are presented below.

Friday, 20 November

11:00 am	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	1697.51	65.09	53.08
Demand (MW)	7730	7825	7694
Available capacity (MW)	10 623	10 656	10 678
11:30 am	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	1397.45	100.78	84.42
Demand (MW)	7813	7922	7788
Available capacity (MW)	10 626	10 660	10 682
12 noon	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	804.74	160.87	115.98
Demand (MW)	7927	8021	7899
Available capacity (MW)	10 648	10 669	10 691
12:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	5927.79	342.16	250.78
Demand (MW)	8000	8102	7986
Available capacity (MW)	10 677	10 678	10 690
1:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	8388.30	5208.83	281.48
Demand (MW)	8068	8148	8036
Available capacity (MW)	10 676	10 664	10 689
1:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	5563.64	8816.98	283.49
Demand (MW)	8137	8177	8065
Available capacity (MW)	10 688	10 648	10 689
3:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	4746.86	285.01	295.79
Demand (MW)	8119	8002	8018
Available capacity (MW)	10 532	10 667	10 674

In accordance with clause 3.13.7 of the Electricity Rules, the AER will issue a separate report into the circumstances that led to the spot price exceeding $5000/MWh.

New South Wales: There were 12 occasions where the spot price in New South Wales was greater than three times the New South Wales weekly average price of $315/MWh (which is also above $250/MWh). Four of these occurred when prices were generally aligned across all regions and is detailed in the national market outcomes section. The remaining eight occasions are presented below.

Friday, 20 November

10:00 am	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	6696.65	59.97	47.79
Demand (MW)	12 253	11 045	11 046
Available capacity (MW)	12 233	12 351	12 351
10:30 am	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	1695.73	61.35	59.97
Demand (MW)	12 318	11 184	11 187
Available capacity (MW)	12 434	12 351	12 351
11:00 am	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	8664.47	64.01	59.97
Demand (MW)	12 621	11 313	11 325
Available capacity (MW)	12 425	12 351	12 351
11:30 am	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	6728.98	89.96	88.00
Demand (MW)	12 860	11 429	11 442
Available capacity (MW)	12 587	12 321	12 351
12 noon*	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	908.49	139.44	119.95
Demand (MW)	13 012	11 613	11 584
Available capacity (MW)	12 587	12 281	12 351
12:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	7051.49	303.00	264.92
Demand (MW)	13 186	12 010	11 800
Available capacity (MW)	12 502	12 281	12 351
1:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	9283.95	5896.66	299.48
Demand (MW)	13 276	12 344	11 923
Available capacity (MW)	12 492	12 281	12 351
1:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	6204.34	10000.00	299.48
Demand (MW)	13 269	13 238	12 087
Available capacity (MW)	12 579	12 322	12 351
3:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	5152.13	10000.00	8803.58
Demand (MW)	13 199	13 969	12 661
Available capacity (MW)	12 572	12 660	12 532

* The spot price at this time did not exceed three times the New South Wales weekly average price of $315/MWh. It is included to show the price trend during the high priced period.

In accordance with clause 3.13.7 of the Electricity Rules, the AER will issue a separate report into the circumstances that led to the spot price exceeding $5000/MWh.

South Australia: There were 11 occasions where the spot price in South Australia was greater than three times the South Australia weekly average price of $442/MWh (which is also above $250/MWh). Four of these occurred when prices were generally aligned across all regions and is detailed in the national market outcomes section. The remaining seven occasions are presented below.

Thursday, 19 November

2:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	4616.24	314.59	404.40
Demand (MW)	2884	2702	2893
Available capacity (MW)	3256	3152	3169
2:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	6777.81	317.33	421.50
Demand (MW)	2905	2738	2907
Available capacity (MW)	3225	3159	3170
5:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	9999.77	171.81	438.92
Demand (MW)	2992	2827	2921
Available capacity (MW)	3186	3204	3167
5:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	9998.40	105.11	299.40
Demand (MW)	2938	2793	2901
Available capacity (MW)	3198	3200	3155
6:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	6999.21	64.43	1000.00
Demand (MW)	2889	2740	2824
Available capacity (MW)	3178	3191	3154
6:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	2463.59	48.43	1000.00
Demand (MW)	2854	2700	2759
Available capacity (MW)	3171	3171	3151
7:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	1619.30	54.61	62.56
Demand (MW)	2756	2503	2431
Available capacity (MW)	3128	3173	3135

In accordance with clause 3.13.7 of the Electricity Rules, the AER will issue a separate report into the circumstances that led to the spot price exceeding $5000/MWh.

Detailed NEM Price and Demand Trends

for Weekly Market Analysis
15 November - 21 November 2009

AUSTRALIAN ENERGY REGULATOR

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

Financial year	QLD	NSW	VIC	SA	TAS
2009-10 ($/MWh) (YTD)	36	45	27	95	26
2008-09 ($/MWh) (YTD)	39	51	42	40	46
Change*	-7%	-11%	-34%	134%	-44%
2008-09 ($/MWh)	36	43	49	69	62

Table 2: NEM turnover

Financial year	NEM Turnover** ($, billion)	Energy (TWh)
2009-10 (YTD)	$3.289	81
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)
Jul-09	29	34	28	29	27	0.539
Aug-09	24	25	23	24	22	0.418
Sep-09	25	26	24	28	22	0.406
Oct-09	27	28	26	30	26	0.459
Nov-09 (MTD)	92	142	40	425	35	1.454
Q3 2009	26	28	25	27	24	1.377
Q3 2008	36	41	42	42	44	2.226
Change*	-29%	-31%	-41%	-36%	-46%	-38.16%

Table 4: ASX energy futures contract prices at 16 November

	QLD		NSW		VIC		SA	
Q1 2010	Base	Peak	Base	Peak	Base	Peak	Base	Peak
Price on 16 Nov ($/MW)	54	92	54	90	58	100	100	160
Price on 23 Nov ($/MW)	57	103	58	97	61	105	99	160
Open interest on 23 Nov	2898	145	3104	96	3657	265	87	50
Traded in the last week (MW)	543	5	906	10	1317	35	1	0
Traded since 1 Jan 09 (MW)	6503	255	6738	123	7479	356	146	20
Settled price for Q1 09($/MW)	35	48	38	48	62	114	102	200

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

Comparison:	QLD	NSW	VIC	SA	TAS	NEM
September 09 with September 08						
MW Priced <$20/MWh	-236	-1137	-194	6	507	-1054
MW Priced $20 to $50/MWh	-7	981	10	-82	90	991
October 09 with October 08						
MW Priced <$20/MWh	156	-288	247	48	29	193
MW Priced $20 to $50/MWh	-140	227	110	-45	702	854
November 09 with November 08						
MW Priced <$20/MWh	894	-300	696	306	-66	1529
MW Priced $20 to $50/MWh	-299	-104	324	-122	820	619

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