

# WEEKLY ELECTRICITY MARKET ANALYSIS



AUSTRALIAN ENERGY  
REGULATOR

22 – 28 November 2009

## Summary

On 27 November the spot price exceeded \$5000/MWh for two trading intervals in New South Wales intervals and for one trading interval in Queensland. This drove increased average weekly spot prices in those regions. As required under the National Electricity Rules, the AER will issue a report into the circumstances that led to the spot price exceeding \$5000/MWh.

Weekly average spot prices in the other regions decreased compared to the previous week. There were 12 trading intervals in South Australia with negative prices. The lowest price of -\$140/MWh occurred on Friday afternoon - output from wind generation was greater than 700 MW at the time.

## Spot market prices

Figure 1 sets out the volume weighted average prices for the week 22 to 28 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 22 – 28 November	137	156	29	26	32
% change from previous week*	-27	-51	-42	-94	-7
09/10 financial YTD	42	51	28	92	26
% change from 08/09 financial YTD**	8	1	-33	130	-43

\*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<sup>1</sup>.

## Financial markets

Figures 2 to 9 show futures contract<sup>2</sup> prices traded on the Sydney Futures Exchange (SFE) as at close of trade on Monday 30 November. Figure 2 shows the base futures contract prices for

<sup>1</sup> 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](http://www.aer.gov.au) -> Monitoring, reporting and enforcement -> Electricity market reports -> Long-term analysis.

<sup>2</sup> Futures contracts on the SFE are listed by d-cyphaTrade ([www.d-cyphatrade.com.au](http://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.

the next three calendar years, and the three year average. Also shown are percentage changes<sup>3</sup> compared to the previous week.

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

	QLD		NSW		VIC		SA	
Calendar Year 2010	40*	0%	43	-3%	41*	-5%	55	1%
Calendar Year 2011	42*	0%	46	-1%	46*	-1%	55	2%
Calendar Year 2012	49*	3%	52	1%	53	0%	69	0%
Three year average	44	1%	47	-1%	47	-2%	60	1%

Source: d-cyphaTrade [www.d-cyphatrade.com.au](http://www.d-cyphatrade.com.au)

\* denotes trades in the product.

Figure 3 shows the \$300 cap contract price for the first quarter of 2010 and the 2010 calendar year and the percentage change<sup>4</sup> from the previous week.

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

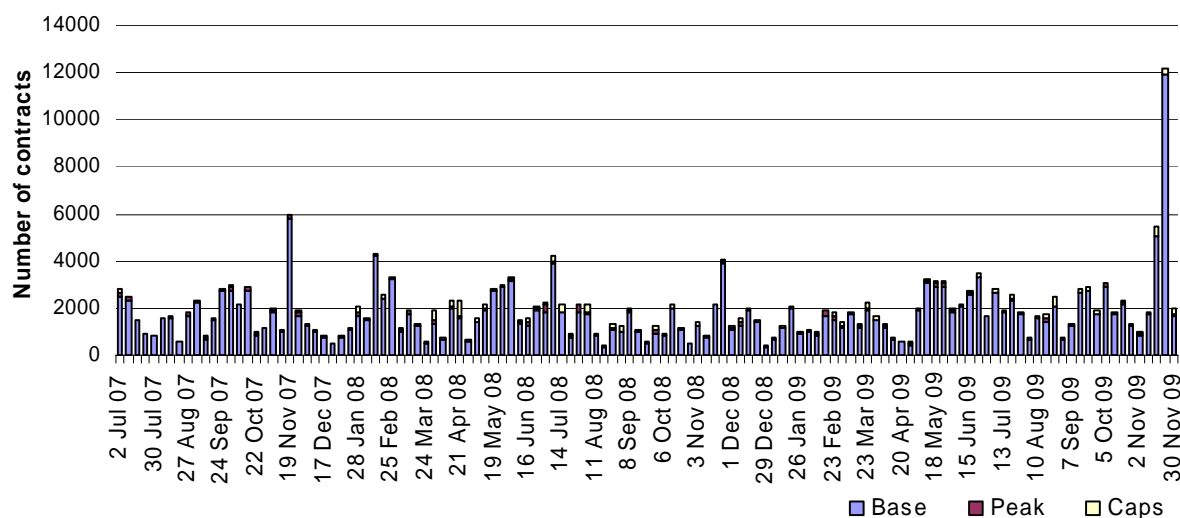
	QLD		NSW		VIC		SA	
Q1 2010 (% Change)	28	-2%	25*	-4%	28*	-3%	60	43%
2010 (% Change)	12	-1%	13	23%	11	-2%	18	32%

Source: d-cyphaTrade [www.d-cyphatrade.com.au](http://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**



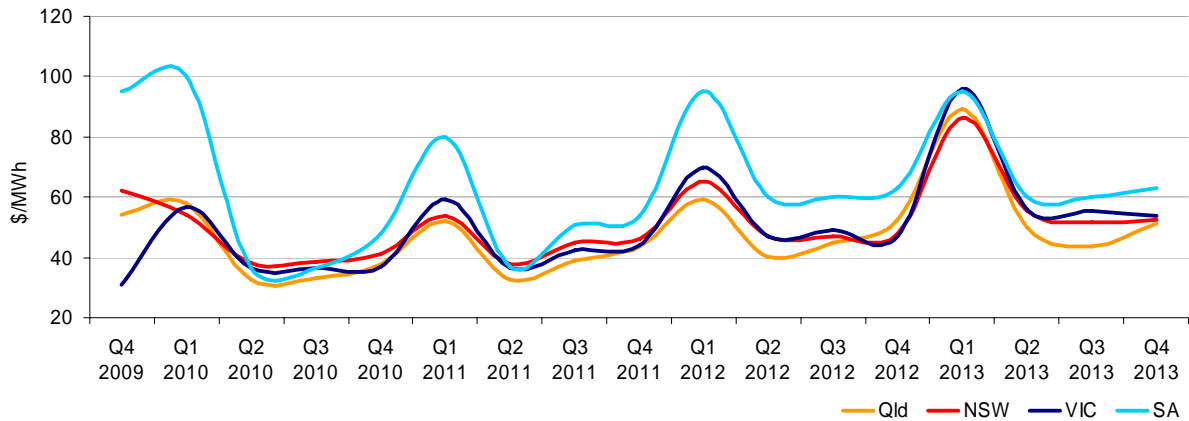
Source: d-cyphaTrade [www.d-cyphatrade.com.au](http://www.d-cyphatrade.com.au)

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

<sup>3</sup> Calculated on prices prior to rounding.

<sup>4</sup> Calculated on prices prior to rounding.

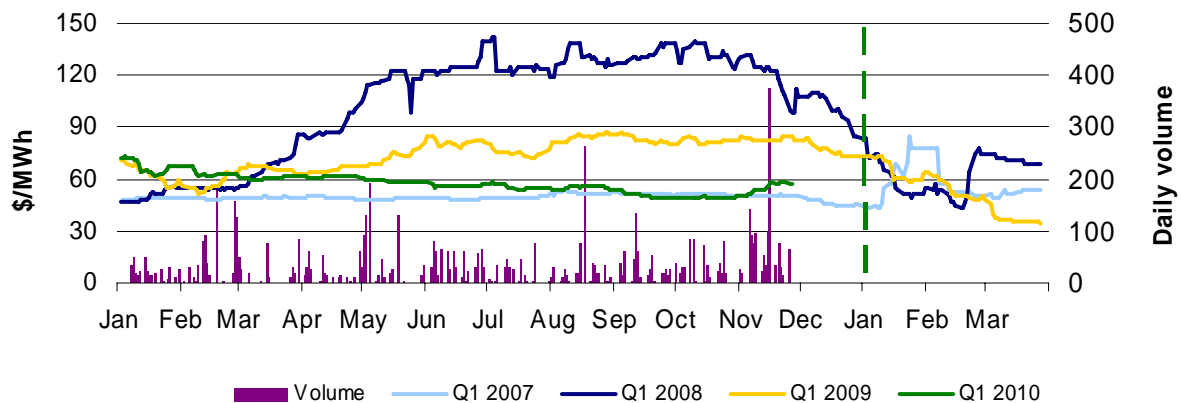
**Figure 5: Quarterly base future prices Q4 2009 – Q3 2013**



Source: d-cyphaTrade [www.d-cyphatrade.com.au](http://www.d-cyphatrade.com.au)

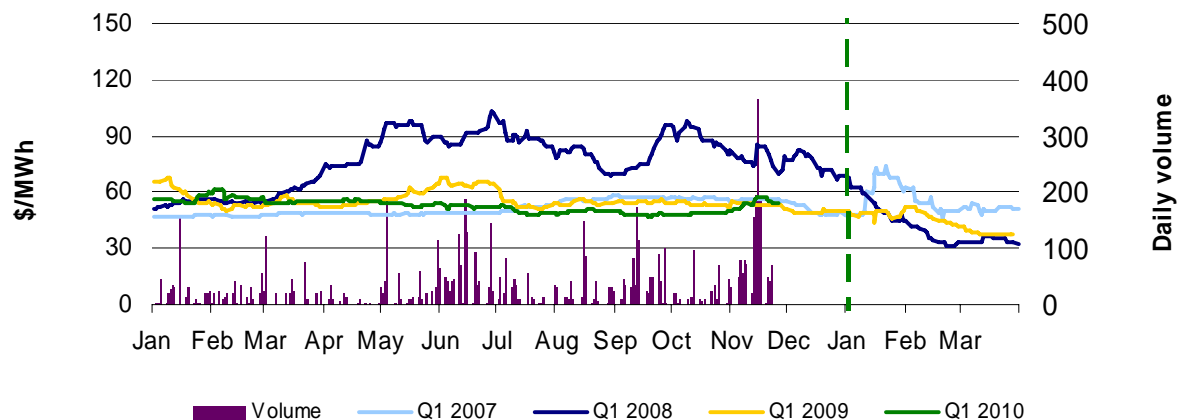
Figures 6-9 compare for each region the closing daily base contract prices for the first quarter of 2007, 2008, 2009 and 2010. Also shown is the daily volume of Q1 2010 base contracts traded. The vertical dashed line signifies the start of the Q1 period for which the contracts are being purchased. To 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 6: Queensland Q1 2007, 2008, 2009 and 2010**



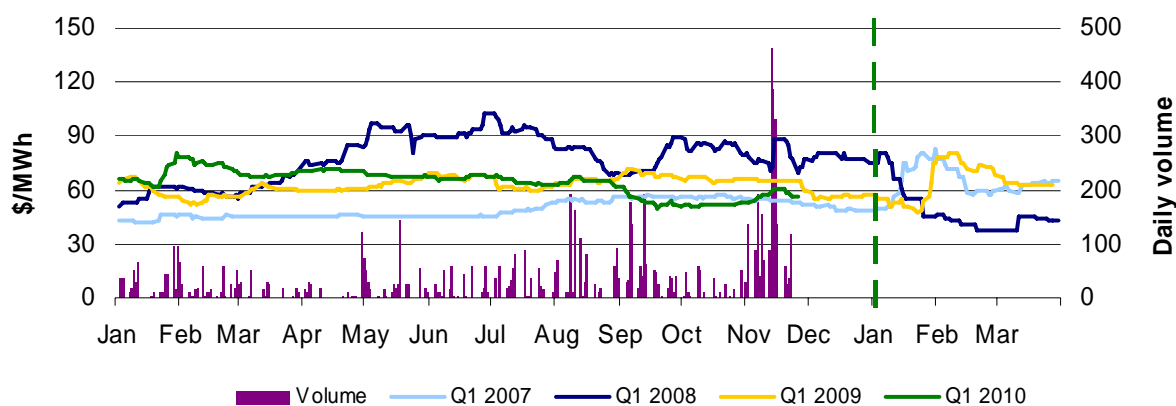
Source: d-cyphaTrade [www.d-cyphatrade.com.au](http://www.d-cyphatrade.com.au)

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



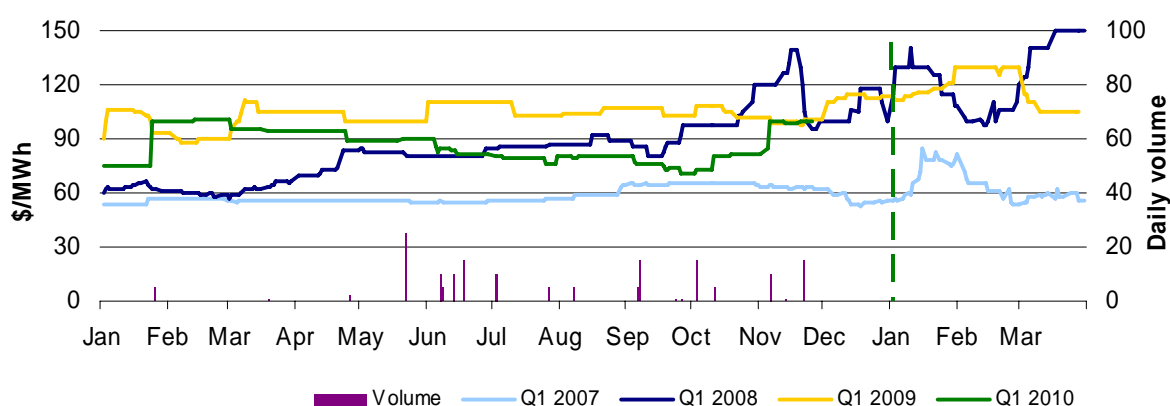
Source: d-cyphaTrade [www.d-cyphatrade.com.au](http://www.d-cyphatrade.com.au)

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



Source: d-cyphaTrade [www.d-cyphatrade.com.au](http://www.d-cyphatrade.com.au)

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



Source: d-cyphaTrade [www.d-cyphatrade.com.au](http://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 177 trading intervals throughout the week where actual prices varied significantly from forecasts<sup>5</sup>. This compares to the weekly average in 2008 of 130 counts. Reasons for these variances are summarised in Figure 10<sup>6</sup>.

<sup>5</sup> 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.

<sup>6</sup> 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.

**Figure 10: Reasons for variations between forecast and actual prices**

	Availability	Demand	Network	Combination
% of total above forecast	5	20	0	5
% of total below forecast	47	20	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 11 shows the weekly change in total available capacity at various price levels during peak periods<sup>7</sup>. For example, in Queensland 145 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	-145	-142	-349	-41
NSW	-540	22	-927	-552
VIC	-308	-231	-483	-579
SA	-182	19	-332	-446
TAS	-69	285	-19	-24
<b>TOTAL</b>	<b>-1244</b>	<b>-47</b>	<b>-2,110</b>	<b>-1642</b>

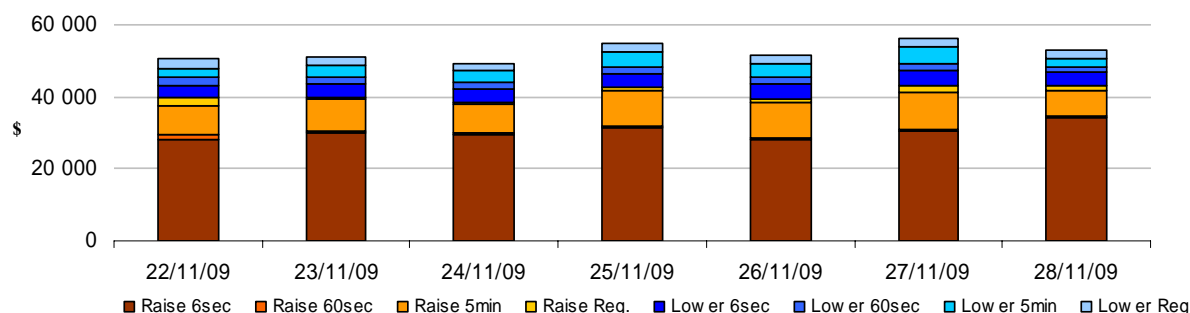
### Ancillary services market

The total cost of frequency control ancillary services (FCAS) on the mainland for the week was \$137 141 or less than one per cent of energy turnover on the mainland.

The total cost of FCAS in Tasmania for the week was \$229 119 or around four 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 December 2009

<sup>7</sup> 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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**Queensland:** There were eight occasions where the spot price in Queensland was greater than three times the Queensland weekly average price of \$137/MWh (which is also above \$250/MWh).

**Thursday, 26 November**

<b>2:00 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	1576.70	90.80	93.96
Demand (MW)	7798	7748	7723
Available capacity (MW)	9925	9947	9906
<b>2:30 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	2825.57	91.46	93.96
Demand (MW)	7706	7754	7730
Available capacity (MW)	9938	9944	9906

Conditions at the time saw demand and available capacity close to forecast four and 12 hours ahead. Queensland and New South Wales prices were aligned, see New South Wales section for details of the conditions at the time.

**Friday, 27 November**

<b>1:30 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	2590.23	311.69	127.23
Demand (MW)	8101	7951	7872
Available capacity (MW)	10 168	10 138	10 188
<b>2:00 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	1003.63	304.91	250.78
Demand (MW)	8095	7931	7928
Available capacity (MW)	10 172	10 146	10 188
<b>2:30 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	1093.20	313.92	250.78
Demand (MW)	8180	7938	7937
Available capacity (MW)	10 165	10 118	10 193
<b>3:00 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	4097.40	250.78	250.78
Demand (MW)	8158	7937	7936
Available capacity (MW)	10 121	10 157	10 193
<b>3:30 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	7527.19	295.79	250.78
Demand (MW)	8127	7916	7915
Available capacity (MW)	10 040	10 162	10 192
<b>4:00 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	4574.88	250.78	246.85
Demand (MW)	8090	7940	7905
Available capacity (MW)	10 119	10 163	10 192

Conditions at the time saw Queensland and New South Wales prices aligned. In accordance with clause 3.13.7 of the Electricity Rules, the AER will issue a separate report in to the circumstances that led to the spot price exceeding \$5000/MWh.

**New South Wales:** There were eight occasions where the spot price in New South Wales was greater than three times the New South Wales weekly average price of \$156/MWh (which is also above \$250/MWh).

#### **Thursday, 26 November**

<b>2:00 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	1560.85	88.00	90.43
Demand (MW)	11 631	11 130	11 123
Available capacity (MW)	11 975	11 975	11 735
<b>2:30 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	2927.81	88.00	90.43
Demand (MW)	11 670	11 163	11 159
Available capacity (MW)	12 003	11 975	11 735

Conditions at the time saw New South Wales demand up to 507 MW higher than forecast four hours ahead. Available capacity was close to forecast four hours ahead. New South Wales and Queensland prices were aligned.

At 1.44 pm, effective from 1.55 pm, Eraring Energy rebid 400 MW of available capacity at Eraring units one, two and three from prices below \$22/MWh to above \$8600/MWh. The reason given was “Predispatch greater than previous forecast”. At 2 pm the five-minute dispatch price increased from \$134/MWh to over \$8700/MWh.

At 1.57 pm Snowy Hydro rebid around 1300 MW of available capacity at Tumut three from prices above \$50/MWh to zero. The reason given was “Price higher thn prev fcst:bnd shft dn”.

A network constraint that was limiting imports across the Victoria to New South Wales interconnector was related to transmission capacity between the Snowy Hydro generators at the Tumut stations and Sydney. When Snowy rebid capacity into lower prices the dispatch of Tumut three increased from 446 MW at 1.30 pm to 1313 MW by 2.30 pm, around 1000 MW greater than that forecast four hours ahead. This led to reduced flows from Victoria into New South Wales (1029 MW at 1.55 pm to 298 MW at 2.05 pm).

There was no other significant rebidding.

**Friday, 27 November**

<b>1:30 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	3364.67	299.48	120.19
Demand (MW)	11 594	11 531	11 059
Available capacity (MW)	12 202	12 079	12 518
<b>2:00 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	1273.53	293.00	235.48
Demand (MW)	11 652	11 490	11 152
Available capacity (MW)	12 227	12 201	12 518
<b>2:30 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	1030.11	299.48	238.97
Demand (MW)	11 660	11 538	11 208
Available capacity (MW)	12 277	12 261	12 518
<b>3:00 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	4099.46	246.33	240.77
Demand (MW)	11 820	11 522	11 258
Available capacity (MW)	12 327	12 171	12 518
<b>3:30 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	8932.89	290.66	242.69
Demand (MW)	11 901	11 567	11 364
Available capacity (MW)	12 377	12 211	12 558
<b>4:00 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	5461.60	235.61	233.66
Demand (MW)	11 891	11 343	11 259
Available capacity (MW)	12 407	12 261	12 598

Conditions at the time saw Queensland and New South Wales prices aligned. 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  
22 November - 28 November 2009



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

Financial year	QLD	NSW	VIC	SA	TAS
2009-10 (\$/MWh) (YTD)	42	51	28	92	26
2008-09 (\$/MWh) (YTD)	39	50	41	40	46
Change*	8%	1%	-33%	130%	-43%
2008-09 (\$/MWh)	36	43	49	69	62

**Table 2: NEM turnover**

Financial year	NEM Turnover** (\$, billion)	Energy (TWh)
2009-10 (YTD)	\$3.729	85
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)	104	146	37	341	34	1.894
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 30 November**

	QLD		NSW		VIC		SA	
	Base	Peak	Base	Peak	Base	Peak	Base	Peak
Q1 2010								
Price on 23 Nov (\$/MW)	57	103	58	97	61	105	99	160
Price on 30 Nov (\$/MW)	58	100	54	94	57	105	100	160
Open interest on 30 Nov	2854	175	3176	96	3513	242	102	30
Traded in the last week (MW)	185	30	182	5	240	60	15	0
Traded since 1 Jan 09 (MW)	6688	285	6920	128	7719	416	161	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	839	-384	620	342	-100	1317
MW Priced \$20 to \$50/MWh	-348	-199	325	-122	814	470

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

\*\* Estimated value