

# WEEKLY ELECTRICITY MARKET ANALYSIS



AUSTRALIAN ENERGY  
REGULATOR

6 – 12 December 2009

## Summary

High demand driven by high temperatures in New South Wales early in the week led to very high prices on Monday and Tuesday and drove the average price for the week to almost \$300/MWh. In accordance with the National Electricity Rules, the AER will issue separate reports into the circumstances that led to the spot prices exceeding \$5000/MWh.

Across the rest of the National Electricity Market (NEM) average spot prices ranged from \$22/MWh in Victoria and South Australia to \$46/MWh in Queensland

## Spot market prices

Figure 1 sets out the volume weighted average prices for the week 6 to 12 December 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 6 –12 December	46	296	22	22	41
% change from previous week*	96	1143	-8	-8	31
09/10 financial YTD	41	60	27	87	27
% change from 08/09 financial YTD**	5	25	-32	122	-40

\*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 14 December. Figure 2 shows the base futures contract prices for the next three calendar years, and the three year average. Also shown are percentage changes<sup>3</sup> compared to the previous week.

<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.

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

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

	QLD		NSW		VIC		SA	
Calendar year 2010	39	-5%	43	-2%	43	1%	55	0%
Calendar year 2011	40*	-2%	44	-1%	45*	1%	55	0%
Calendar year 2012	49	0%	52	0%	53	0%	69	0%
Three year average	43	-3%	46	-1%	47	0%	60	0%

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)**

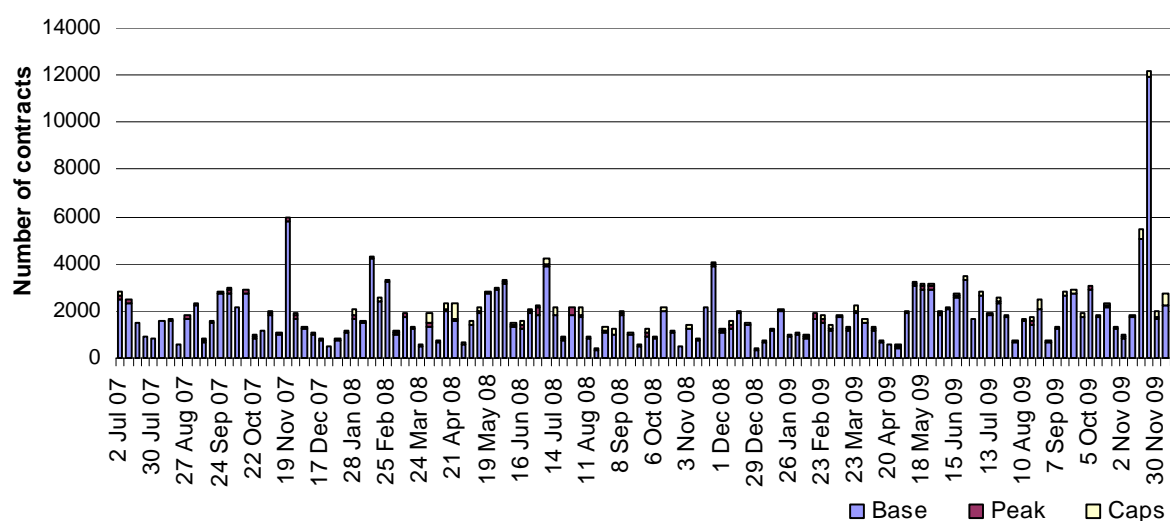
	QLD		NSW		VIC		SA	
Q1 2010 (% change)	27*	-5%	28*	9%	33*	13%	60	0%
2010 (% change)	11	-7%	13	3%	12	8%	18	0%

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 since July 2007. The date represents the end of the trading week.

**Figure 4: Number of exchange traded contracts per week**

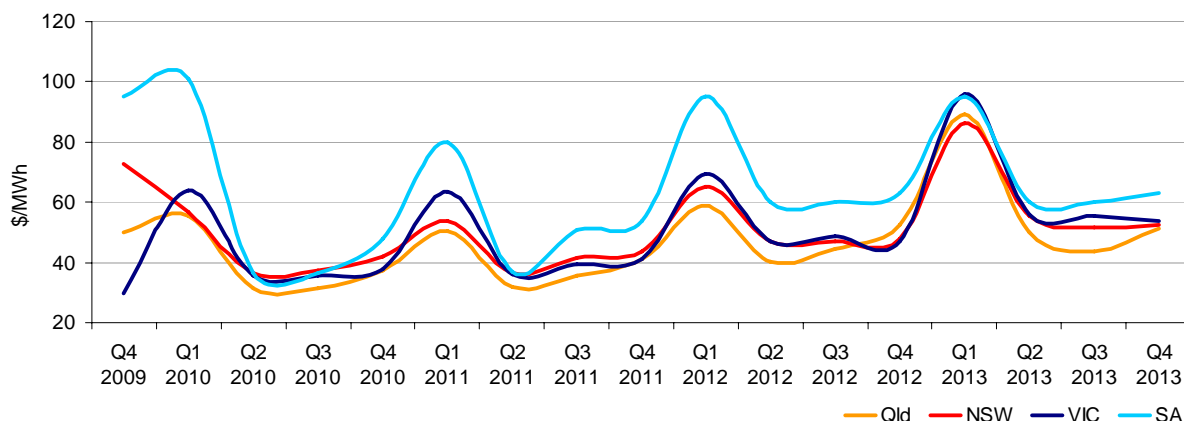


Source: d-cyphaTrade [www.d-cyphatrade.com.au](http://www.d-cyphatrade.com.au)

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

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

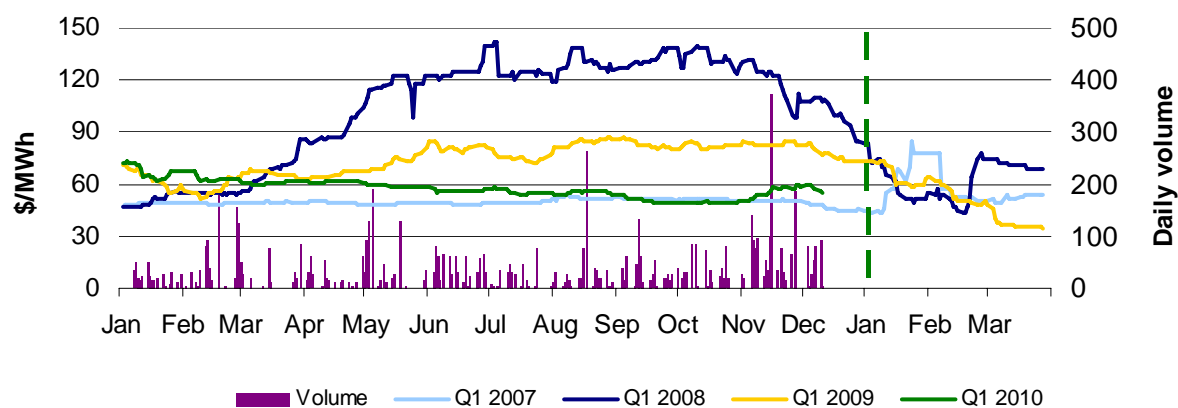
**Figure 6: Quarterly base future prices Q4 2009 – Q4 2013**



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

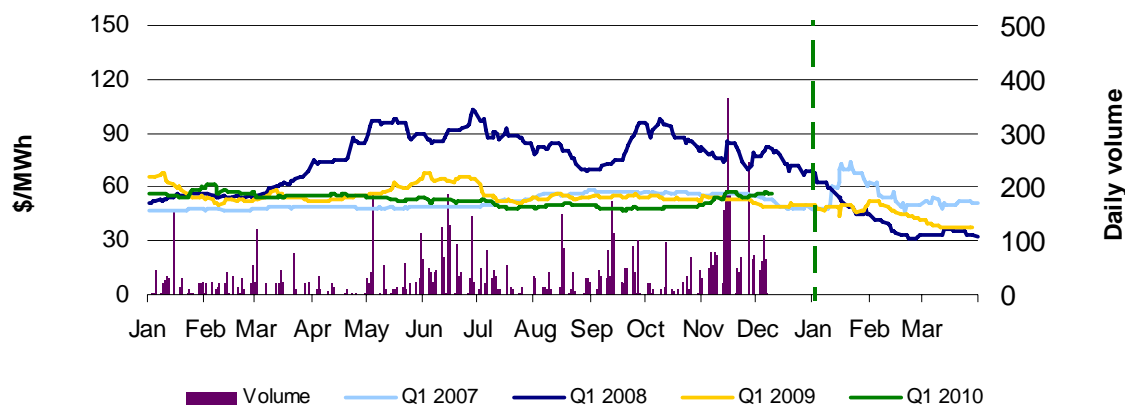
Figures 7-10 compare for each region the closing daily base contract prices for the first quarter of 2007, 2008, 2009 and 2010. Also shown is the daily volume of Q1 2010 base contracts traded. The vertical dashed line signifies the start of the Q1 period for which the contracts are being purchased. To 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 6: Queensland Q1 2007, 2008, 2009 and 2010**



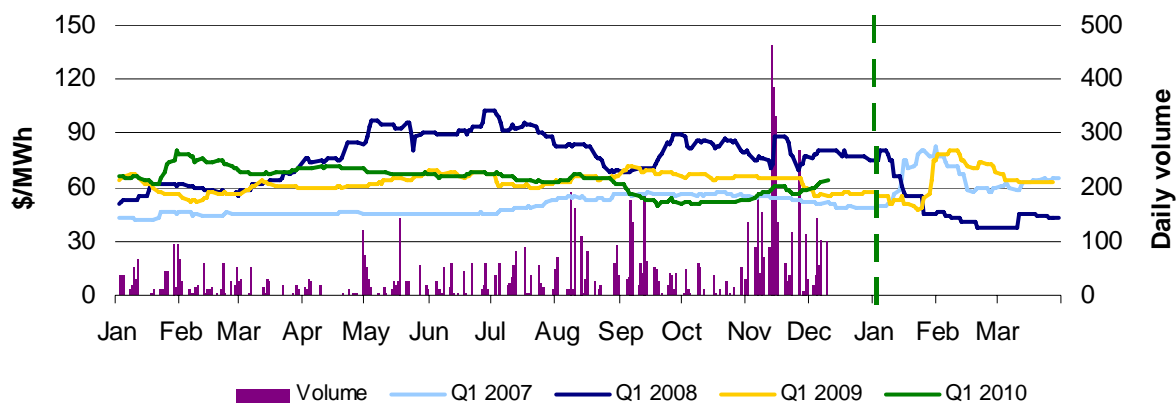
Source: d-cyphaTrade [www.d-cyphatrade.com.au](http://www.d-cyphatrade.com.au)

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



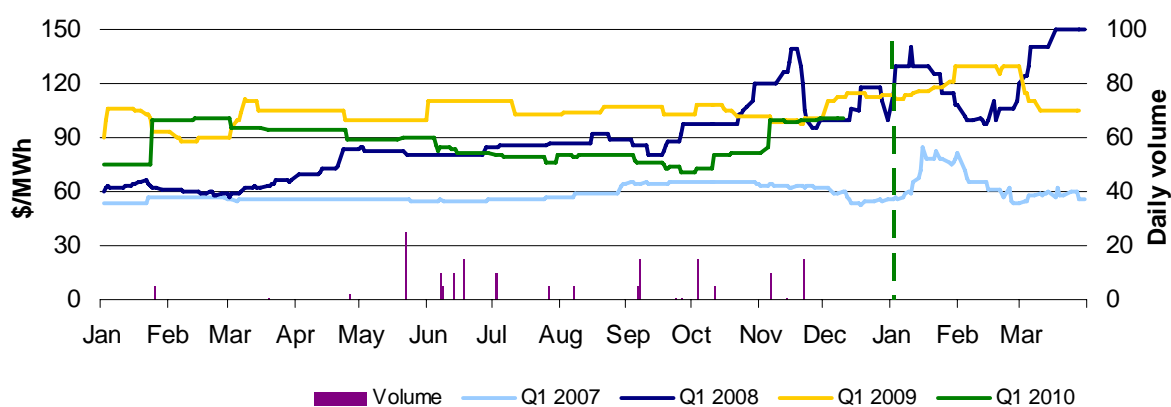
Source: d-cyphaTrade [www.d-cyphatrade.com.au](http://www.d-cyphatrade.com.au)

**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 194 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	1	15	0	3
% of total below forecast	64	14	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 22 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	22	4	-75	706
NSW	914	-135	411	1021
VIC	736	-300	507	-26
SA	55	-5	-24	-55
TAS	15	-478	-58	9
<b>TOTAL</b>	<b>1742</b>	<b>-914</b>	<b>761</b>	<b>1655</b>

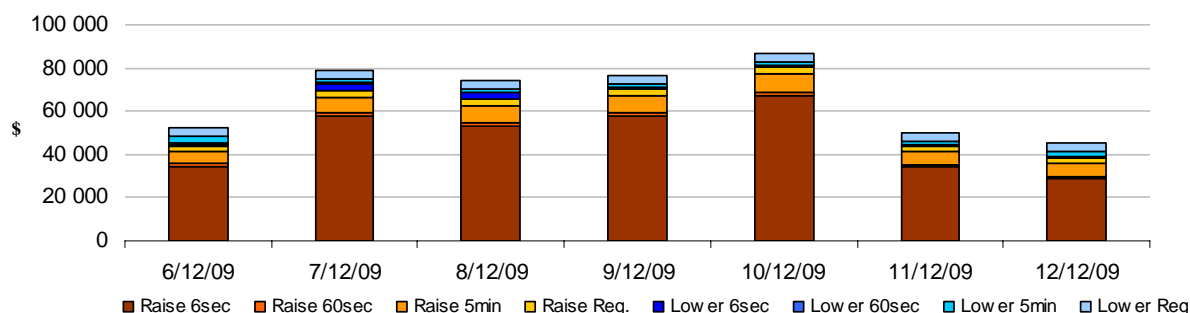
### Ancillary services market

The total cost of frequency control ancillary services (FCAS) on the mainland for the week was \$106 000 or less than one per cent of energy turnover on the mainland.

The total cost of FCAS in Tasmania for the week was \$358 000 or about five 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**



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<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



6 –12 December 2009

**Queensland:** There were 3 occasions where the spot price in Queensland was greater than three times the Queensland weekly average price of \$46/MWh and above \$250/MWh.

### Monday, 7 December

<b>3:30 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	539.22	7500.00	126.08
Demand (MW)	8173	8263	8266
Available capacity (MW)	10 499	10 688	10 807
<b>4:00 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	254.78	1801.74	126.07
Demand (MW)	8130	8260	8264
Available capacity (MW)	10 457	10 706	10 807

Conditions at the time saw demand and available capacity close to forecast. The spot price in Queensland was significantly less than forecast four hours ahead. Flows across the Queensland and New South Wales interconnectors were at their limit.

Over three rebids at 11.20 am, 12.10 pm and 2 pm, Origin Energy rebid 420 MW of capacity across Mount Stuart one, two and three from prices above \$9100/MWh to below \$250/MWh. The reasons given were “Change in PDS” and “Fuel management”

There was no other significant rebidding.

### Tuesday, 8 December

<b>12:00 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	1708.44	209.85	250.78
Demand (MW)	8277	8212	8210
Available capacity (MW)	10 620	10 794	10 798

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

At 7.31 am, Millmerran Energy Trader rebid 240 MW of capacity at Millmerran priced below \$10/MWh to above \$9500/MWh. The reason given was “Change in Qld predispatch sensitivities 2009120805/06”.

There was no other significant rebidding.

**New South Wales:** There were 14 occasions where the spot price in New South Wales was greater than three times the New South Wales weekly average price of \$296/MWh (which is also greater than \$250/MWh).

### Monday, 7 December

<b>12:00 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	7714.89	39.38	38.01
Demand (MW)	11 783	11 370	11 240
Available capacity (MW)	13 072	13 100	13 100
<b>1:00 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	5023.77	115.57	49.32
Demand (MW)	12 020	11 621	11 581
Available capacity (MW)	13 092	13 100	13 100
<b>1:30 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	1805.85	344.25	89.97
Demand (MW)	12 184	11 963	11 728
Available capacity (MW)	13 016	13 100	13 100
<b>2:00 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	9059.53	431.83	119.97
Demand (MW)	12 410	12 099	11 932
Available capacity (MW)	12 872	13 103	13 100
<b>2:30 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	9175.60	3405.98	119.97
Demand (MW)	12 463	12 287	12 122
Available capacity (MW)	12 874	13 103	13 100
<b>3:00 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	9134.05	3406.35	119.97
Demand (MW)	12 608	12 411	12 240
Available capacity (MW)	12 883	13 103	13 100
<b>3:30 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	6308.41	7952.43	119.97
Demand (MW)	12 733	12 556	12 381
Available capacity (MW)	12 935	13 103	13 100
<b>4:00 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	4015.52	3405.98	119.97
Demand (MW)	12 808	12 573	12 402
Available capacity (MW)	13 106	13 073	13 100
<b>4:30 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	1655.63	643.02	119.97
Demand (MW)	12 683	12 439	12 274
Available capacity (MW)	13 102	12 906	13 100
<b>5:00 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	1177.07	507.82	119.97
Demand (MW)	12 556	12 226	12 068
Available capacity (MW)	13 083	12 910	13 100

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.

**Tuesday, 8 December**

<b>12:00 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	1196.59	831.51	914.62
Demand (MW)	11 528	12 523	12 529
Available capacity (MW)	13 042	13 102	13 102
<b>2:30 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	2112.60	3405.98	3406.30
Demand (MW)	12 114	13 075	13 071
Available capacity (MW)	13 390	13 436	13 102
<b>3:00 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	4786.19	3406.93	3407.08
Demand (MW)	12 235	13 128	13 127
Available capacity (MW)	13 335	13 427	13 102
<b>4:30 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	1846.65	921.91	3405.98
Demand (MW)	12 012	12 948	12 941
Available capacity (MW)	13 387	13 391	13 102

Conditions at the time saw demand up to 995 MW less than that forecast four hours ahead and available capacity close to forecast. Prices were similar to forecast.

At 11.45 am AEMO invoked constraints to manage negative residues across QNI and Directlink, which limited imports to around zero from Queensland. This constraint applied until 5.30 pm.

At 12.10 am AEMO invoked a constraint to manage negative residues across the Victoria to New South Wales interconnector, which limited imports to around zero from Victoria. This constraint applied until 2 pm. The constraint was also invoked from 3.20 pm to 5.10 pm.

As a result of these constraints, imports into New South Wales were reduced by almost 1500 MW compared to forecast.



# Detailed NEM Price and Demand Trends

for Weekly Market Analysis  
6 - 12 December 2009



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

Financial year	QLD	NSW	VIC	SA	TAS
2009-10 (\$/MWh) (YTD)	41	60	27	87	27
2008-09 (\$/MWh) (YTD)	39	48	40	39	45
Change*	5%	25%	-32%	122%	-40%
2008-09 (\$/MWh)	36	43	49	69	62

**Table 2: NEM turnover**

Financial year	NEM Turnover** (\$, billion)	Energy (TWh)
2009-10 (YTD)	\$4.365	93
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)
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	99	138	36	325	34	1.924
Dec-09 (MTD)	36	186	23	22	37	0.606
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 14 December**

	QLD		NSW		VIC		SA	
Q1 2010	Base	Peak	Base	Peak	Base	Peak	Base	Peak
Price on 07 Dec (\$/MW)	60	106	57	95	60	104	101	160
Price on 14 Dec (\$/MW)	56	99	57	97	64	115	101	160
Open interest on 14 Dec	3059	175	3393	147	3823	232	102	30
Traded in the last week (MW)	254	0	243	50	438	60	0	0
Traded since 1 Jan 09 (MW)	7214	295	7592	183	8597	476	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
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	855	-401	581	338	-101	1271
MW Priced \$20 to \$50/MWh	-354	-172	325	-124	812	487
December 09 with December 08						
MW Priced <\$20/MWh	1466	-55	-199	388	-279	1321
MW Priced \$20 to \$50/MWh	-582	-65	496	-82	464	230

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

\*\* Estimated value