

# WEEKLY ELECTRICITY MARKET ANALYSIS



AUSTRALIAN ENERGY  
REGULATOR

27 November - 3 December 2011

## Summary

Weekly average spot prices ranged from \$21/MWh in Tasmania to \$35/MWh in New South Wales and Queensland.

## Spot market prices

Figure 1 sets out the volume weighted average (VWA) prices for the week 27 November to 3 December and the 11/12 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 27 Nov - 03 Dec 2011	35	35	24	24	21
% change from previous week*	14	11	-12	-21	-30
11/12 financial YTD	30	32	28	37	31
% change from 10/11 financial YTD **	44	17	19	35	-12

\*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<sup>1</sup>.

## Financial markets

Figures 2 to 9 show futures contract<sup>2</sup> prices traded on the Australian Securities Exchange (ASX) as at close of trade on Monday 6 December 2011. 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 changes<sup>3</sup> from 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 traded on the ASX 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 2012	44*	2%	50	1%	44	1%	55	0%
Calendar Year 2013	57*	4%	63*	4%	58*	2%	64*	3%
Calendar Year 2014	61	9%	60	2%	58	0%	69	0%
Three year average	54	5%	58	3%	53	1%	63	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 Q1 2012 and calendar year 2012 and the percentage change<sup>4</sup> from the previous week.

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

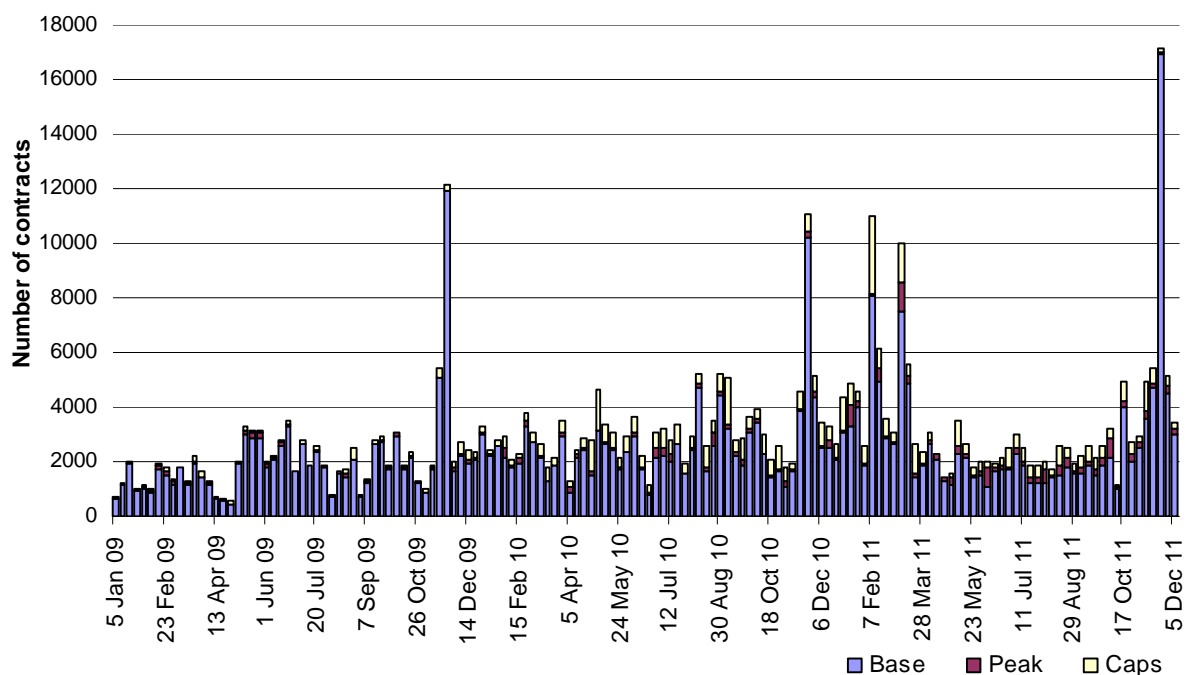
	QLD		NSW		VIC		SA	
Q1 2012 (% change)	15*	1%	19*	6%	18*	3%	42	12%
2012 (% change)	7	4%	10	3%	7	2%	14	9%

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**

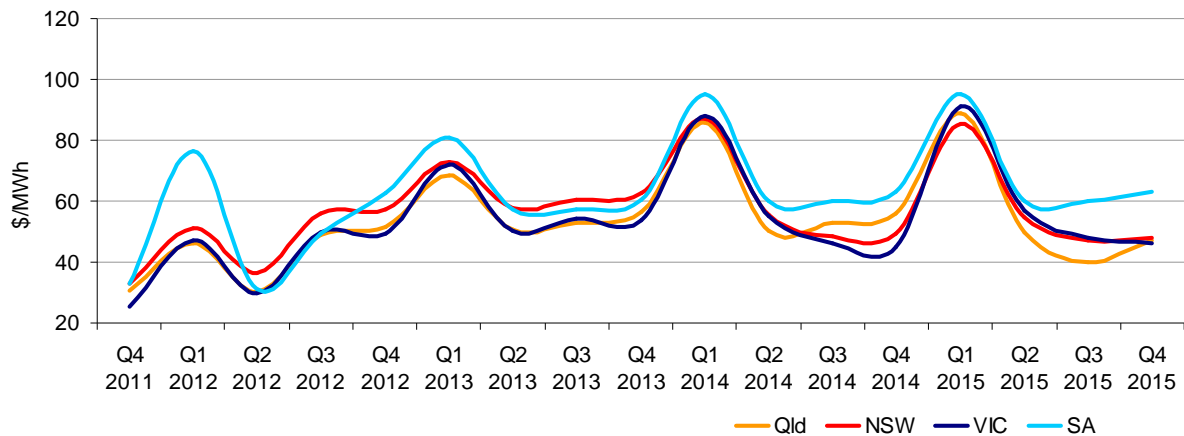


Source: d-cyphaTrade [www.d-cyphatrade.com.au](http://www.d-cyphatrade.com.au)

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

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

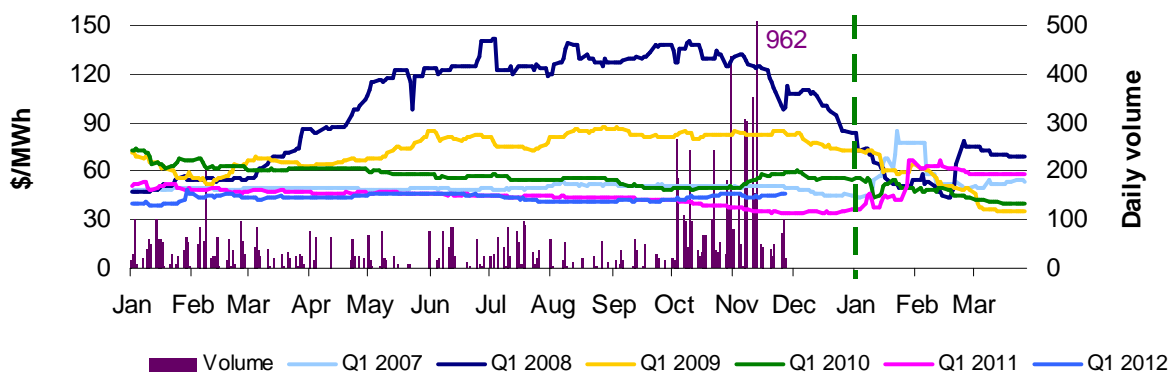
**Figure 5: Quarterly base future prices Q4 2011 – Q4 2015**



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

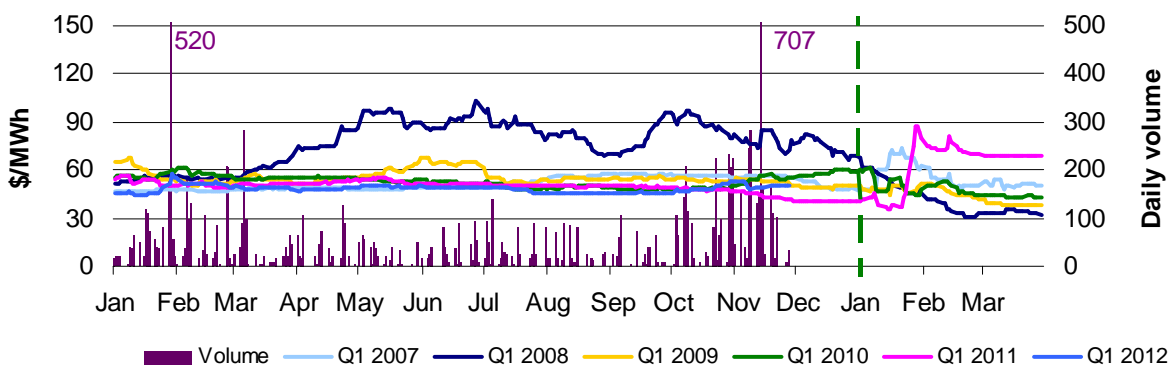
Figures 6-9 compare for each region the closing daily base contract prices for the first quarter of 2007, 2008, 2009, 2010, 2011 and 2012. Also shown is the daily volume of Q1 2012 base contracts traded. The vertical dashed line signifies the start of the Q1 period for which the contracts are being purchased. To understand the diagrams, the dark-blue line in figure 6 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, 2011 and 2012**



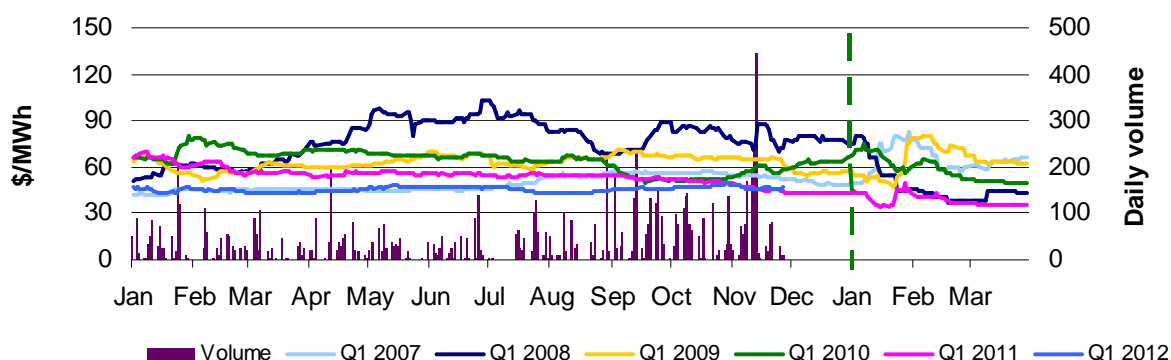
Source: d-cyphaTrade [www.d-cyphatrade.com.au](http://www.d-cyphatrade.com.au)

**Figure 7: New South Wales Q1 2007, 2008, 2009, 2010, 2011 and 2012**



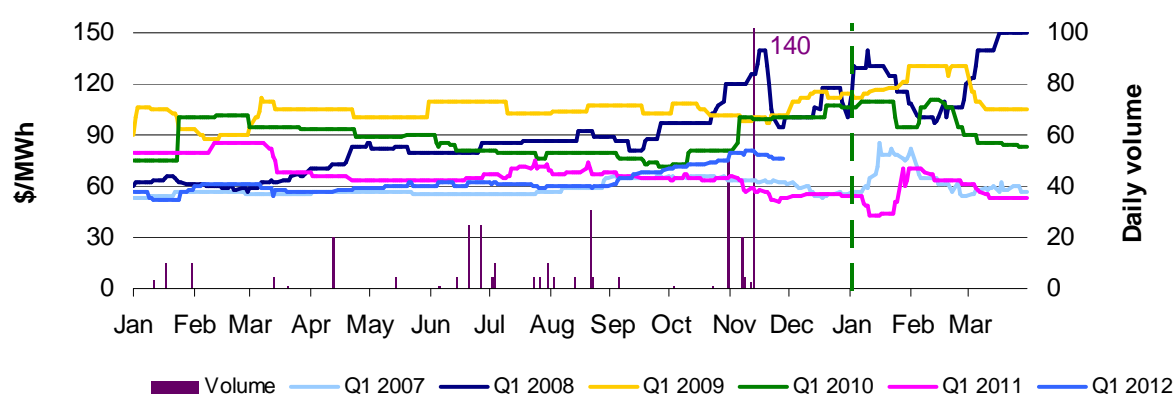
Source: d-cyphaTrade [www.d-cyphatrade.com.au](http://www.d-cyphatrade.com.au)

**Figure 8: Victoria Q1 2007, 2008, 2009, 2010, 2011 and 2012**



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

**Figure 9: South Australia Q1 2007, 2008, 2009, 2010, 2011 and 2012**



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 102 trading intervals throughout the week where actual prices varied significantly from forecasts<sup>5</sup>. This compares to the weekly average in 2010 of 57 counts and the average in 2009 of 103. Reasons for these variances are summarised in Figure 10<sup>6</sup>.

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

	Availability	Demand	Network	Combination
% of total above forecast	1	23	0	2
% of total below forecast	58	16	0	0

<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.

## 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 469 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	-469	264	-205	20
NSW	627	-132	640	335
VIC	558	-150	222	230
SA	114	3	177	77
TAS	92	-135	-55	14
<b>TOTAL</b>	<b>922</b>	<b>-150</b>	<b>779</b>	<b>676</b>

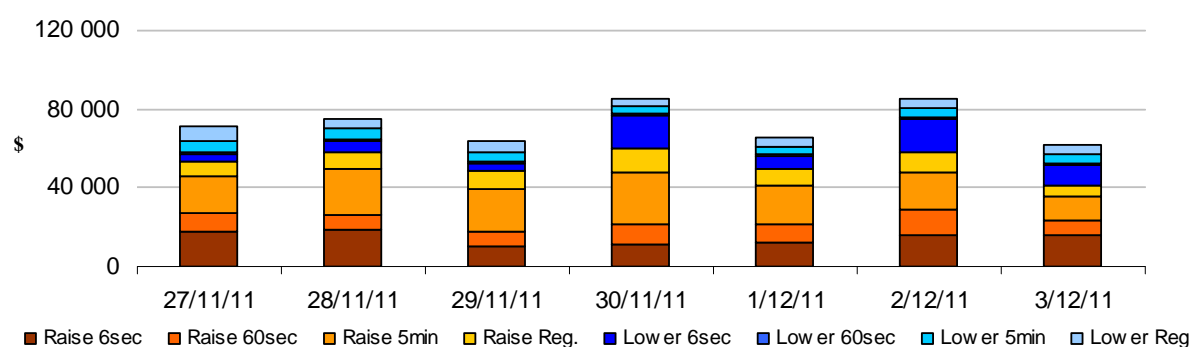
## Ancillary services market

The total cost of frequency control ancillary services (FCAS) on the mainland for the week was \$359 000 or less than one per cent of energy turnover on the mainland.

The total cost of FCAS in Tasmania for the week was \$149 000 or 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**



<sup>7</sup> A peak period is defined as between 7 am and 10 pm on weekdays.

## Detailed Market Analysis

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**South Australia:**

There were two occasions where the spot price in South Australia was less than -\$100/MWh.

**Wednesday, 30 November**

<b>4:30 AM</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	-144.34	8.55	8.93
Demand (MW)	955	996	975
Available capacity (MW)	2801	2875	2826
<b>6 AM</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	-153.48	13.77	13.22
Demand (MW)	1094	1154	1083
Available capacity (MW)	2889	2875	2815

Conditions at the time saw demand up to 60 MW lower than that forecast four hours ahead. Prices were much lower than forecast due to the lower than forecast demand and the fact that wind generation was significantly greater (around 350 MW) than forecast four hours ahead, peaking at around 970 MW during the 4.30 am trading interval and around 1030 MW during the 6 am trading interval.

With the majority of capacity in the region (around 1500 MW) offered at negative prices, the five-minute price fell to below -\$900/MWh at 4.20 am and to the price floor at 6 am.

There was no significant rebidding.

# Detailed NEM Price and Demand Trends

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

Financial year	QLD	NSW	VIC	SA	TAS
2011-12 (\$/MWh) YTD	30	32	28	37	31
2010-11 (\$/MWh) YTD	21	27	24	27	35
Change*	44%	17%	19%	35%	-12%
2010-11 (\$/MWh)	34	43	29	42	31

**Table 2: NEM turnover**

Financial year	NEM Turnover** (\$, billion)	Energy (TWh)
2011-12 (YTD)	\$2.623	86
2010-11	\$7.445	204
2009-10	\$9.643	206

**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-11	29	31	31	36	29	0.483
Sep-11	29	29	28	40	27	0.427
Oct-11	28	29	24	43	33	0.421
Nov-11	35	40	27	32	31	0.512
Dec-11 (MTD)	26	26	21	22	18	0.034
Q1 2011	65	90	41	83	27	3.484
Q1 2010	46	52	67	134	27	3.014
Change*	41%	74%	-38%	-38%	2%	15.57%

**Table 4: ASX energy futures contract prices at end of 5 December 2011**

	QLD		NSW		VIC		SA	
	Base	Peak	Base	Peak	Base	Peak	Base	Peak
Q1 2012								
Price on 28 Nov (\$/MW)	45	70	50	78	46	77	77	140
Price on 05 Dec (\$/MW)	46	73	51	78	47	77	77	140
Open interest on 05 Dec	1252	175	2275	521	2313	424	299	5
Traded in the last week (MW)	243	0	142	0	127	90	0	0
Traded since 1 Jan 11 (MW)	10221	211	11761	1185	9025	852	439	5
Settled price for Q1 11(\$/MW)	57	96	68	118	35	51	53	93

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

Comparison:	QLD	NSW	VIC	SA	TAS	NEM
October 11 with October 10						
MW Priced <\$20/MWh	-782	-1751	-648	-182	-724	-4086
MW Priced \$20 to \$50/MWh	-294	1258	449	126	465	2003
November 11 with November 10						
MW Priced <\$20/MWh	-961	-2254	-1184	-182	-523	-5105
MW Priced \$20 to \$50/MWh	165	1274	938	174	374	2926
December 11 with December 10 (MTD)						
MW Priced <\$20/MWh	-1207	-1676	-896	-331	-347	-4457
MW Priced \$20 to \$50/MWh	350	943	1,036	60	442	2831

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

\*\* Estimated value