

# WEEKLY ELECTRICITY MARKET ANALYSIS



AUSTRALIAN ENERGY  
REGULATOR

18 March- 24 March 2012

## Summary

Weekly average spot prices ranged from \$25/MWh in Victoria to \$31/MWh in Tasmania. The higher average spot price in Tasmania was the result of consecutive trading intervals of around \$55/MWh during the minimum load period in the early hours of the morning.

## Spot market prices

Figure 1 sets out the volume weighted average (VWA) prices for the week 18 March to 24 March 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 18 Mar – 24 Mar 2012	26	26	25	26	31
% change from previous week*	-2	-5	-6	-9	-22
11/12 financial YTD	30	30	27	33	32
% change from 10/11 financial YTD **	-18	-39	-7	-28	5

\*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 26 March 2012. 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	40	-1%	42	0%	37	0%	38	0%
Calendar Year 2013	54*	0%	58*	-1%	53*	0%	56	0%
Calendar Year 2014	55*	-1%	59	-1%	54	0%	63	-4%
Three year average	50	-1%	53	-1%	48	0%	53	-2%

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)**

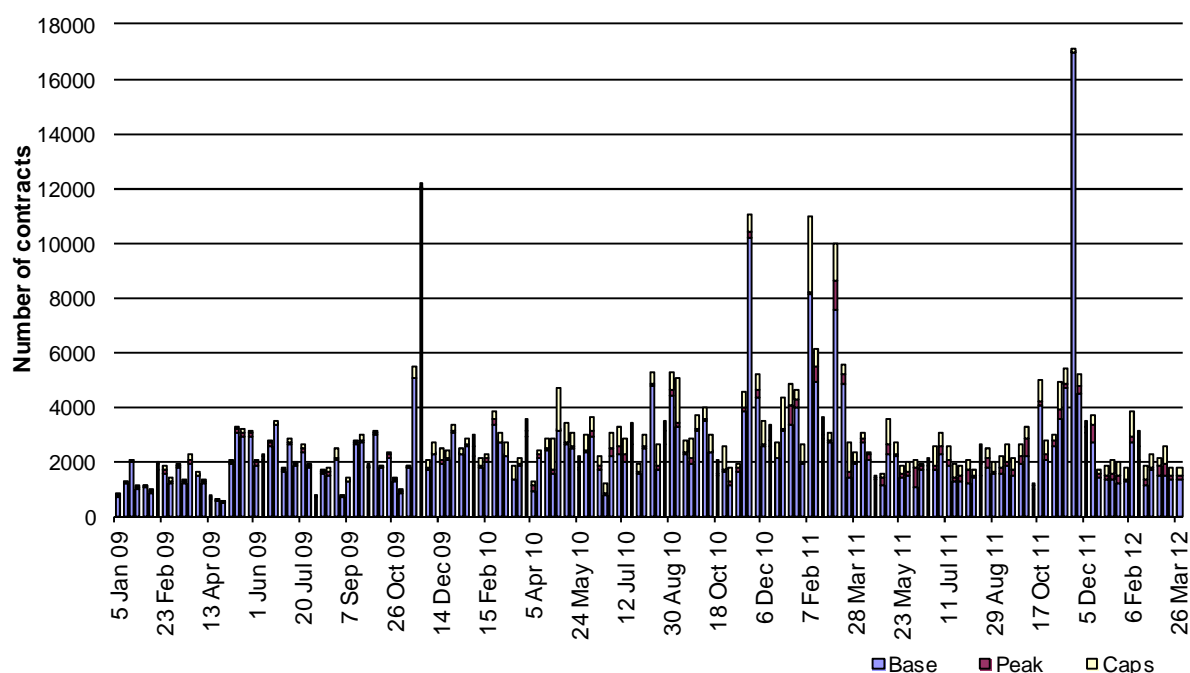
	QLD		NSW		VIC		SA	
Q1 2012 (% change)	2	-8%	0*	-25%	0	-25%	0	-67%
2012 (% change)	3	-4%	4	-12%	1	-3%	3	-7%

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**

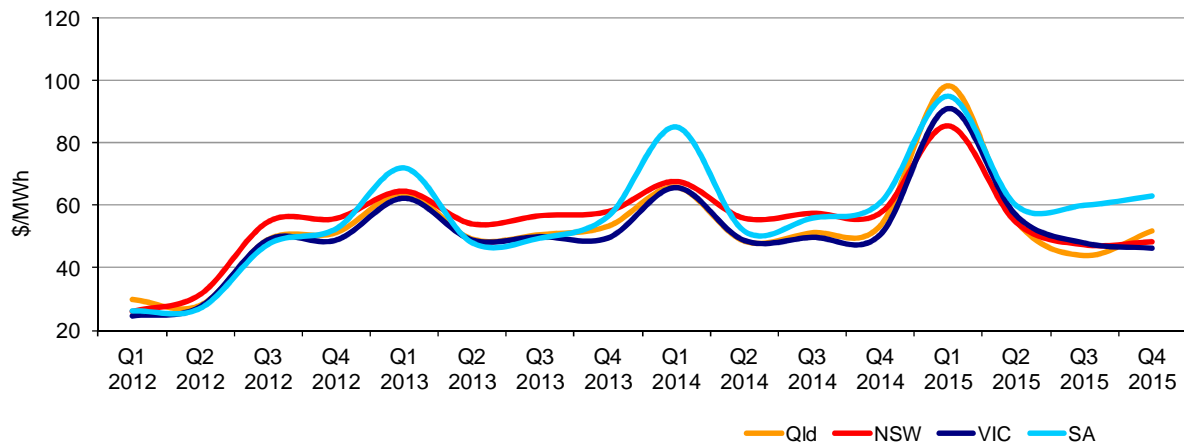


Source: d-cyphaTrade [www.d-cyphatrade.com.au](http://www.d-cyphatrade.com.au)

<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.

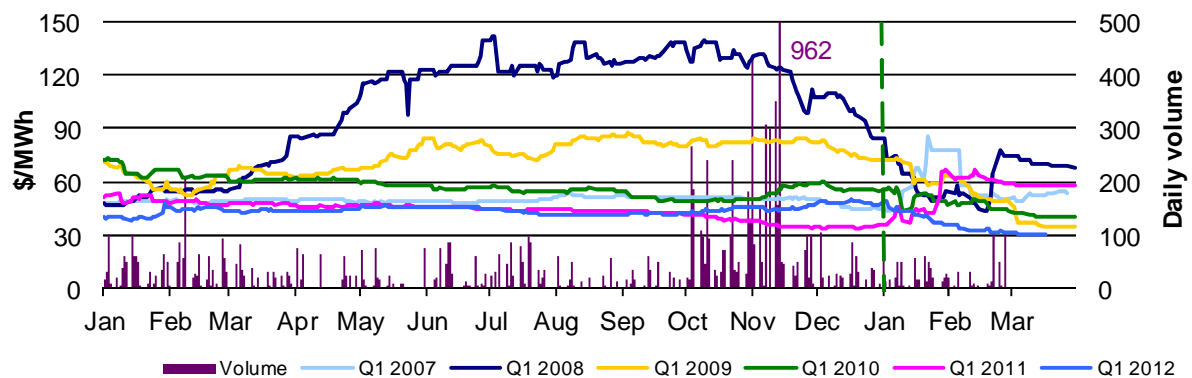
**Figure 5: Quarterly base future prices Q1 2012 – Q4 2015**



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

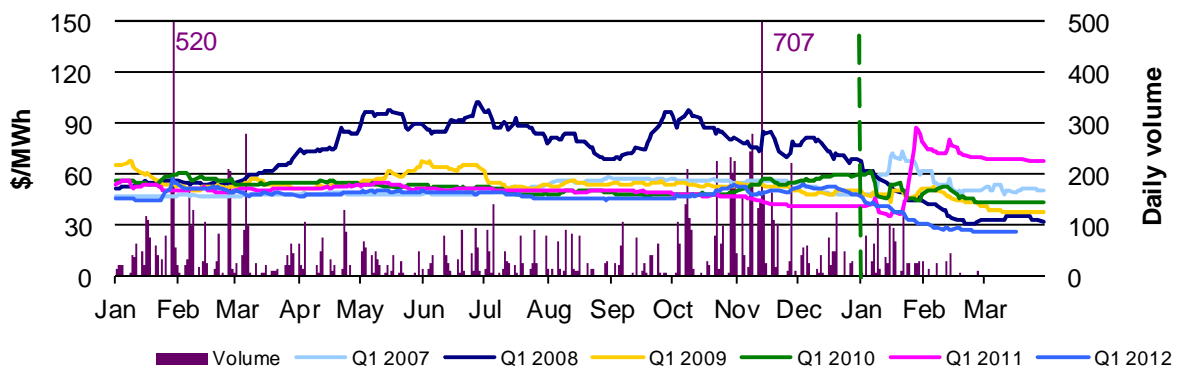
Figures 6-9 compare for each region the closing daily base contract prices for the first quarter of 2007, 2008, 2009, 2010, 2011 and 2012. Also shown is the daily volume of Q1 2012 base contracts traded. The vertical dashed line signifies the start of the Q1 period for which the contracts are being purchased.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



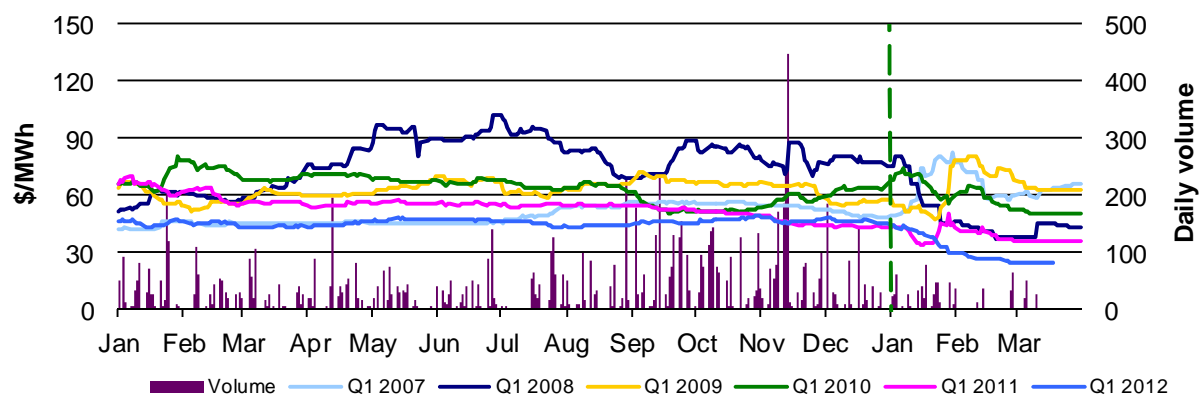
Source: d-cyphaTrade [www.d-cyphatrade.com.au](http://www.d-cyphatrade.com.au)

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



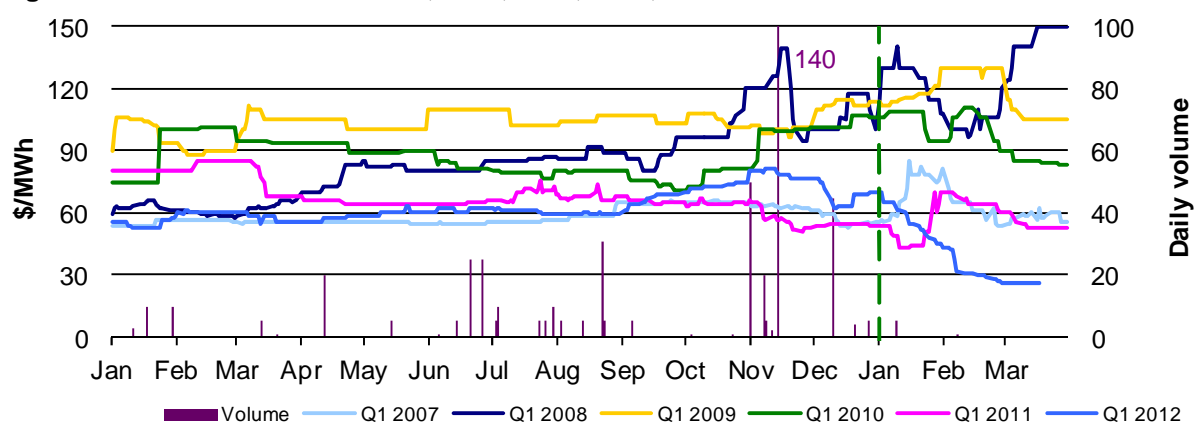
Source: d-cyphaTrade [www.d-cyphatrade.com.au](http://www.d-cyphatrade.com.au)

**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 71 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	28	4	0
% of total below forecast	59	1	2	5

<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 124 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	124	-379	129	-142
NSW	-177	-592	-901	-433
VIC	-180	-83	-106	-229
SA	-98	-21	-184	-92
TAS	249	-118	106	-38
<b>TOTAL</b>	<b>-82</b>	<b>-1193</b>	<b>-956</b>	<b>-934</b>

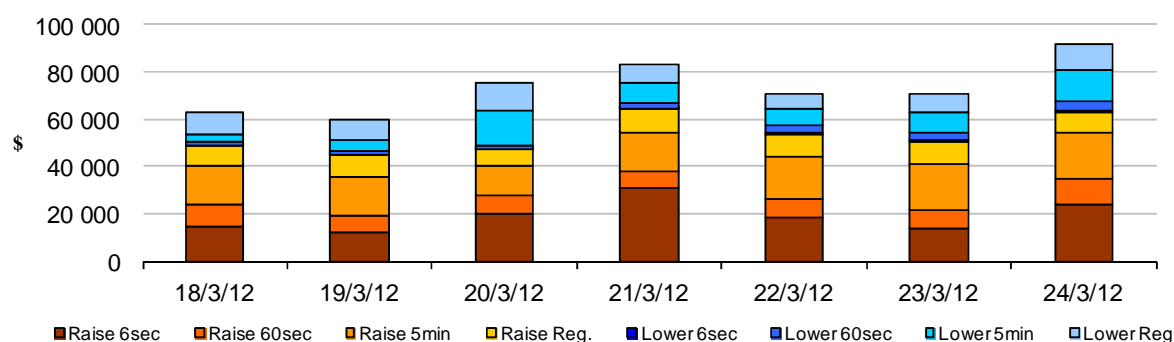
## Ancillary services market

The total cost of frequency control ancillary services (FCAS) on the mainland for the week was \$391 000 or less than one per cent of energy turnover on the mainland.

The total cost of FCAS in Tasmania for the week was \$123 000 or around two and a half 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.



18 March– 24 March 2012

### Queensland:

There was one occasion where the spot price in Queensland was greater than three times the Queensland weekly average price of \$26/MWh and above \$250/MWh.

#### **Friday, 23 March**

<b>3:00 PM</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	395.70	24.98	24.26
Demand (MW)	6840	6684	6743
Available capacity (MW)	10 997	11 676	11 804

Conditions at the time saw demand close to that forecast, while available capacity was around 680 MW below that forecast four hours ahead.

At 9.33 am, effective from 9.40 am, CS Energy reduced the available capacity of Gladstone unit one by 135 MW the majority of which was priced below \$40/MWh. The reason given was “0932P gstone1 condenser backflush sl”.

From 9.55 am, a constraint managing the loading on the Calvale to Stanwell 275 kV line for the loss of the Calvale to Wurdong 275 kV line was binding. The constraint equation affects the majority of Queensland generators.

At 9.53 am, effective from 10 am, Callide Power Trading rebid 206 MW of capacity at Callide C Power Station from prices above \$23/MWh to close to the floor. The reason given was “0952F 855-871 manage constraint - sl”. At 1.11 pm, the remainder (160 MW) of the station’s capacity was shifted to prices at close to the floor. The reason given was “1309A intraconnector constraint 855-871”.

At 12.01 pm, Stanwell Corporation rebid 60 MW of capacity at Kareeya Power Station from zero to \$13 250/MWh. The reason given was “1205A manage Q>>NIL\_855\_871 sl”. This meant all but 5 MW of its 88 MW was priced at \$13 250/MWh.

At 12.13 pm, CS Energy rebid 600 MW of capacity at Callide B Power Station from zero and \$16/MWh to close to the floor. The reason given was “1210A call\_b intraconnector constraint and emissions sl”. At 2.32 pm, effective at 2.40 pm, CS Energy reduced the capacity of Gladstone Power unit one by 135 MW (of which 45 MW was priced at \$23/MWh and the remainder at \$881/MWh). The reason given was “1432P condenser backflush sl”.

Over three rebids between 1.37 pm to 2.41 pm, Origin Energy reduced the availability of its Mt Stuart Power Station to zero (from 404 MW), all of which was priced between \$450/MWh and \$550/MWh. The reason given was “A avoid uneconomic start”.

At 2.38 pm, effective from 2.45 pm, Stanwell rebid 573 MW of capacity at Tarong and Tarong North Power Stations from prices above \$10/MWh to below -\$15/MWh. The reason given was “1436P constraint Q>>NIL\_855\_871 binding”.

At 2.53 pm, effective from 3 pm, Arrow Energy rebid 160 MW of positively priced capacity at Braemar 2 Power Station into price bands close to the floor. The reason given was “1453A constraint management: sl”.

The impact of the constraint and these rebids caused rapid ramping up and down and out of merit order generator dispatch and as a result from 11.05 am to 3.05 pm prices fluctuated between \$23/MWh and \$100/MWh with 23 dispatch prices above \$100/MWh. The 5-minute dispatch price spiked to \$1696/MWh at 3 pm. In response to the high prices 453 MW of capacity was rebid close to the floor resulting in the dispatch price falling to -\$462/MWh at 3.40 pm.

At 3.10 pm a constraint that was invoked by AEMO to manage negative settlement residues started to bind (until 3.40 pm). Around \$250 000 of negative settlement residues accrued between 11.30 am and 5 pm.

There was no other significant rebidding.

# Detailed NEM Price and Demand Trends

for Weekly Market Analysis  
18 March - 24 March 2012



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

Financial year	QLD	NSW	VIC	SA	TAS
2011-12 (\$/MWh) YTD	30	30	27	33	32
2010-11 (\$/MWh) YTD	37	49	29	46	31
Change*	-18%	-39%	-7%	-28%	5%
2010-11 (\$/MWh)	34	43	29	42	31

**Table 2: NEM turnover**

Financial year	NEM Turnover** (\$, billion)	Energy (TWh)
2011-12 (YTD)	\$4.289	146
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)
Nov-11	35	40	27	32	31	0.512
Dec-11	26	26	23	25	26	0.369
Jan-12	35	26	25	28	39	0.447
Feb-12	32	27	27	29	37	0.427
Mar-12 (MTD)	29	25	24	25	37	0.307
Q1 2012	32	26	25	28	38	1.299
Q1 2011	69	96	42	88	27	3.388
Change*	-53%	-73%	-40%	-68%	39%	-61.67%

**Table 4: ASX energy futures contract prices at end of 26 March 2012**

	QLD		NSW		VIC		SA	
	Base	Peak	Base	Peak	Base	Peak	Base	Peak
Q1 2012								
Price on 19 Mar (\$/MWh)	30	38	26	30	25	30	26	31
Price on 26 Mar (\$/MWh)	30	38	26	29	24	29	26	31
Open interest on 26 Mar	1079	257	2369	595	2170	302	293	5
Traded in the last week (MW)	0	0	0	0	1	0	0	0
Traded since 1 Jan 11 (MW)	11809	692	13913	1715	10631	1336	499	5
Settled price for Q1 11(\$/MWh)	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
January 12 with January 11						
MW Priced <\$20/MWh	77	609	76	-291	-211	259
MW Priced \$20 to \$50/MWh	168	131	226	57	-8	574
February 12 with February 11						
MW Priced <\$20/MWh	-194	-460	-25	-213	154	-738
MW Priced \$20 to \$50/MWh	416	621	98	94	-404	825
March 12 with March 11 (MTD)						
MW Priced <\$20/MWh	-158	166	-1	-269	59	-204
MW Priced \$20 to \$50/MWh	549	602	-23	60	-527	662

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

\*\* Estimated value