WEEKLY ELECTRICITY MARKET ANALYSIS

AUSTRALIAN ENERGY REGULATOR

28 November – 4 December 2010

Summary

The weekly average spot prices ranged from $16/MWh in South Australia to $23/MWh in New South Wales.

Significant negative spot prices occurred on Sunday in South Australia and Victoria caused by Victorian transmission network outages at Thomastown and on the Heywood interconnector.

Spot market prices

Figure 1 sets out the volume weighted average prices for the week 28 November to 4 December 2010 and the 10-11 financial year 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 28 Nov - 4 Dec 2010	21	23	19	16	18
% change from previous week*	18	-4	-7	-60	2
10/11 financial YTD	21	27	24	27	35
% change from 09/10 financial YTD **	-50	-45	-13	-70	31

*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.

The AER provides further information if the spot price exceeds three times the weekly average and is above $250/MWh, or is less than $-100/MWh. Details of these events are attached in Appendix A. Longer term market trends are attached in Appendix B[1].

[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. To access this information go to
www.aer.gov.au -> Monitoring, reporting and enforcement -> Electricity market reports -> Long-term analysis.

Financial markets

Figures 2 to 9 show futures contract[2] prices traded on the Sydney Futures Exchange (SFE) as at close of trade on Monday 6 December 2010. 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 2: Base calendar year futures contract prices ($/MWh)

	QLD		NSW		VIC		SA	
Calendar Year 2011	29	-2%	37*	-2%	32*	-3%	37	-1%
Calendar Year 2012	32*	-2%	40*	-3%	35*	-1%	40	1%
Calendar Year 2013	41	-3%	51	0%	47	-8%	69	0%
Three year average	34	-2%	43	-1%	38	-4%	49	0%

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

Figure 3 shows the $300 cap contract price for the first quarter of 2011 and the 2011 calendar year and the percentage change[4] from the previous week.

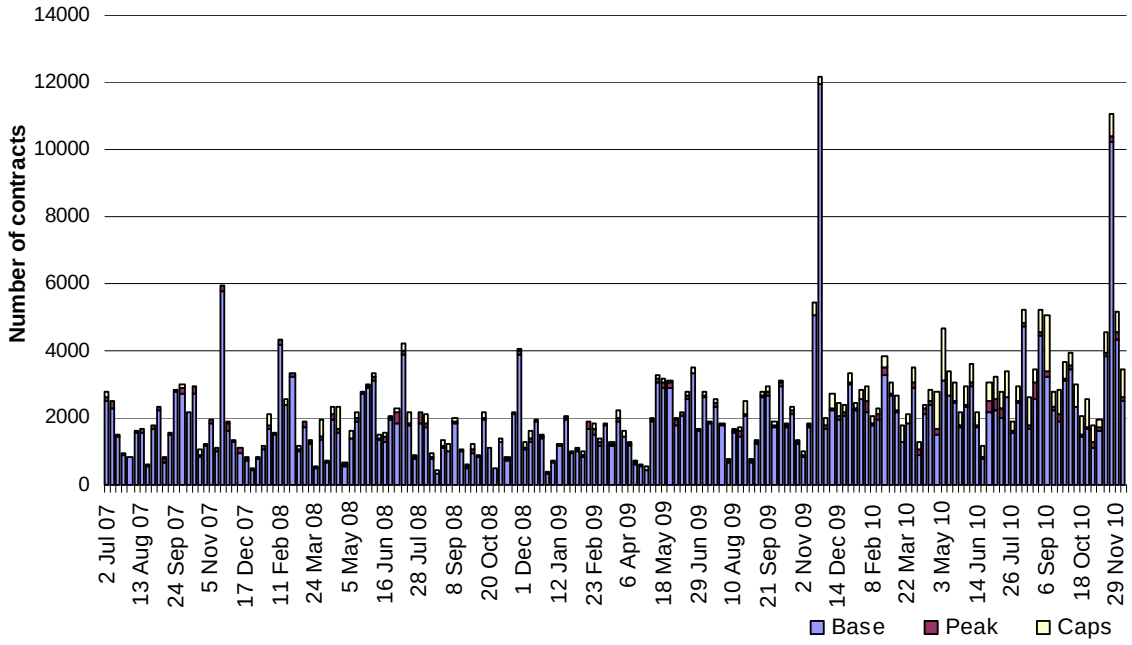
Figure 3: $300 cap contract prices ($/MWh)

	QLD		NSW		VIC		SA	
Q1 2011 (% Change)	9*	-1%	15*	-7%	18*	-4%	25	0%
2011 (% Change)	5	-3%	10	-4%	7	-3%	9	-4%

Source: d-cyphaTrade 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

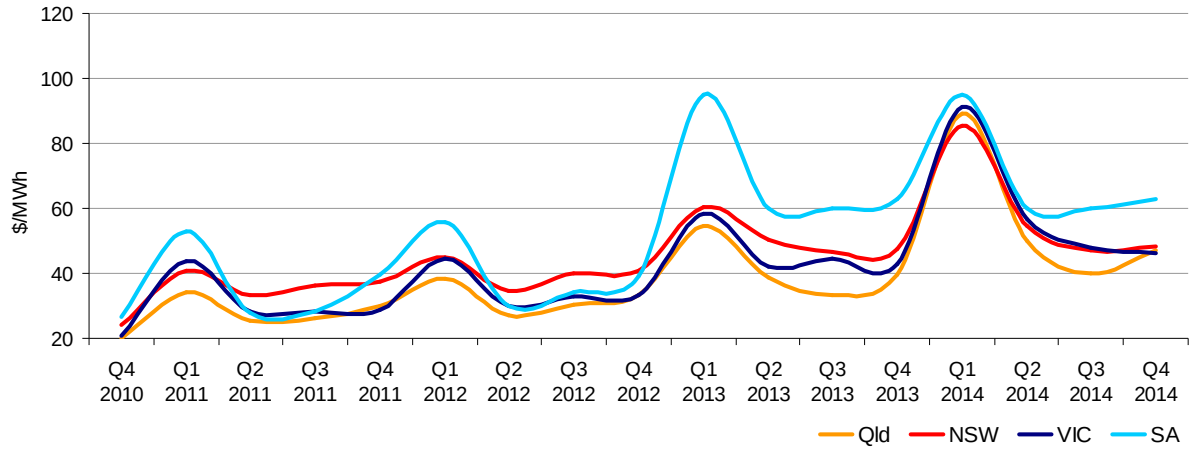


[2] Futures contracts traded on the SFE are listed by d-cyphaTrade (www.d-cyphatrade.com.au). A futures contract is typically for one MW of electrical energy per hour based on a fixed load profile. A base load profile is defined as the base load period from midnight to midnight Monday to Sunday over 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.

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

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

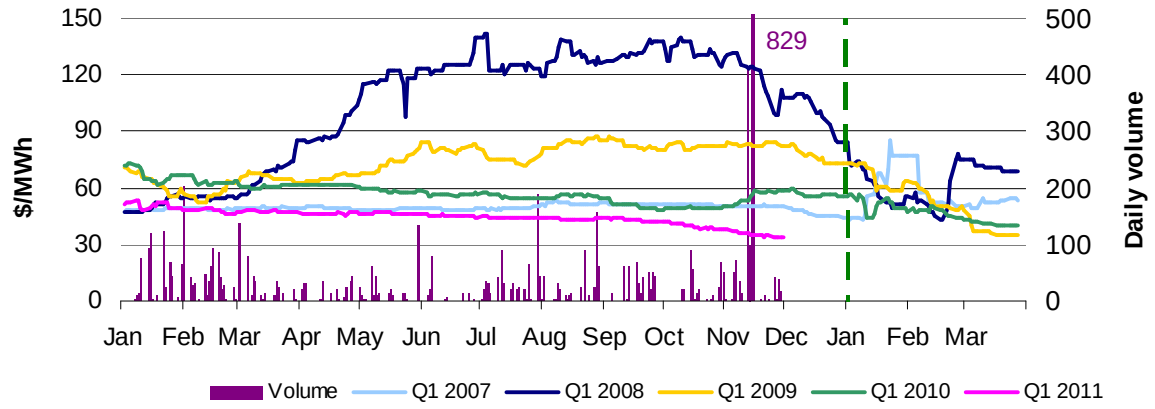
Figure 5: Quarterly base future prices Q4 2010 – Q4 2014



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

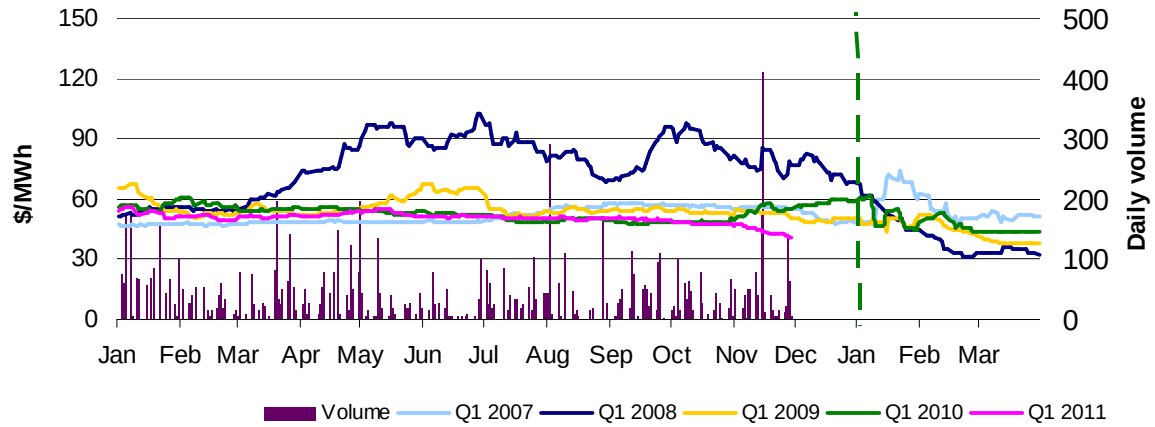
Figures 6-9 compare for each region the closing daily base contract prices for the first quarter of 2007, 2008, 2009, 2010 and 2011. Also shown is the daily volume of Q1 2011 base contracts traded. The vertical dashed line signifies the start of the Q1 period for which the contracts are being purchased.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



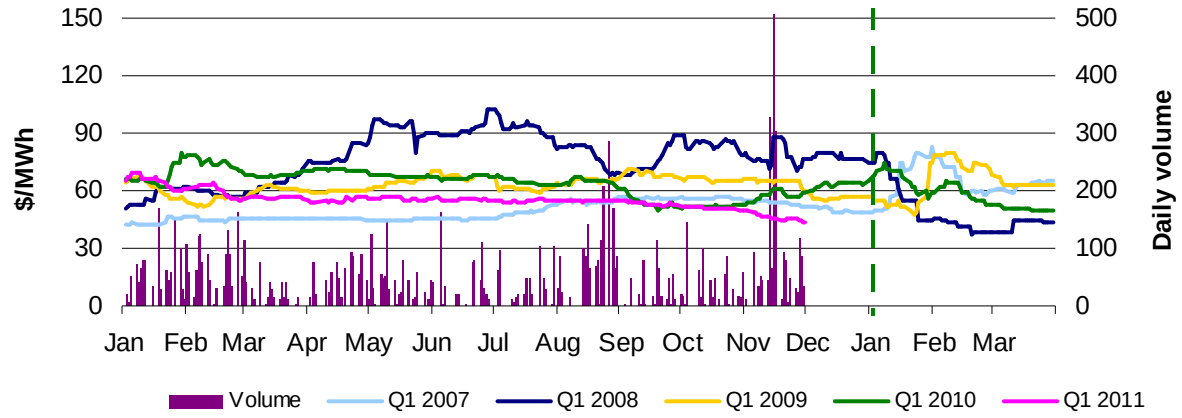
Source: d-cyphaTrade www.d-cyphatrade.com.au

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



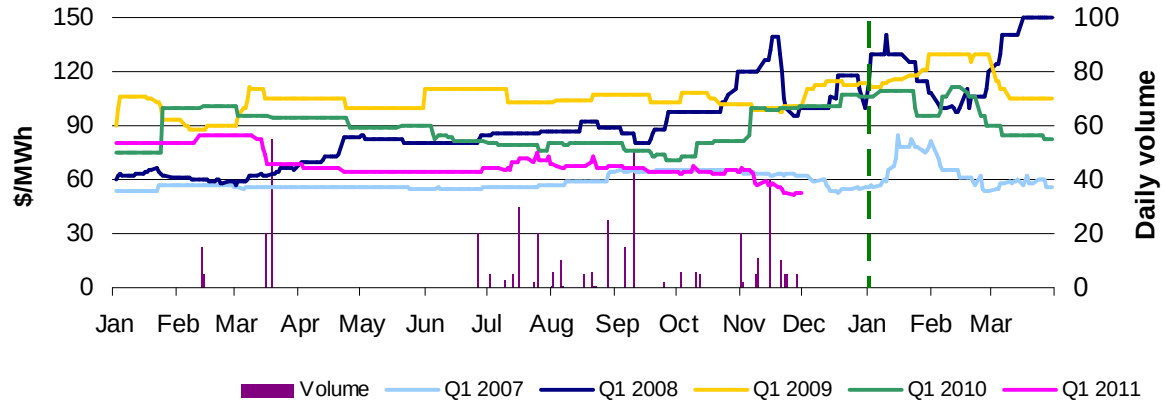
Source: d-cyphaTrade www.d-cyphatrade.com.au

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



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

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



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 43 trading intervals throughout the week where actual prices varied significantly from forecasts[5]. This compares to the weekly average in 2009 of 103 counts. Reasons for these variances are summarised in Figure 10[6].

Figure 10: Reasons for variations between forecast and actual prices

	Availability	Demand	Network	Combination
% of total above forecast	14	20	0	5
% of total below forecast	42	15	0	4

[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.

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[7]. For example, in Queensland 166 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	-166	70	-314	61
NSW	-53	81	142	-376
VIC	-148	-215	-145	-690
SA	-3	-159	-147	-313
TAS	-162	-4	-96	-58
TOTAL	-532	-227	-560	-1376

Ancillary services market

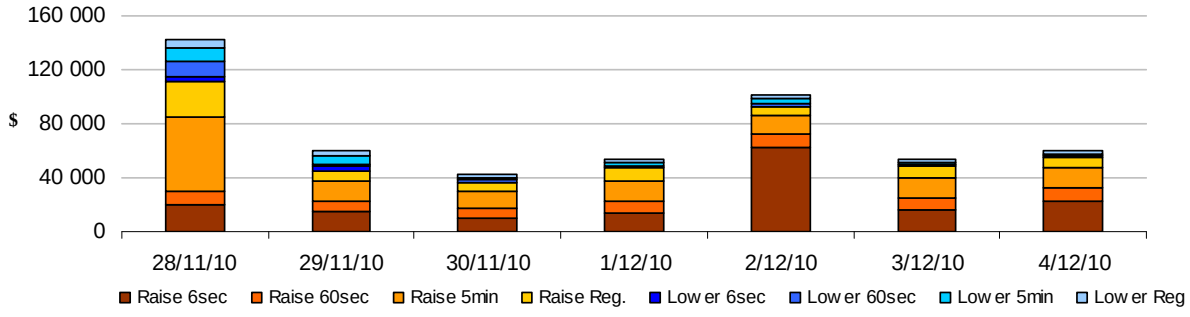
The total cost of frequency control ancillary services (FCAS) on the mainland for the week was $338 000 or less than one per cent of energy turnover on the mainland.

The total cost of FCAS in Tasmania for the week was $175 000 or over five per cent of energy turnover in Tasmania. On 28 November the price of raise 5 minute FCAS reached $1097/MW. This was as a result of Hydro Tasmania rebidding, reducing the availability of raise 5 minute FCAS by up to 384 MW. The reason given was "Interconnector limit different from forecast". This was caused by the network outages in Victoria (see Appendix A for details). The cost to the market was $43 000.

On 2 December, the price of raise 6 second services in Tasmania reached $6767/MW for one dispatch interval at 10.15 pm (for a cost of $50 000). The high price was the result of Basslink dispatch and FCAS requirements.

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 2010

[7] A peak period is defined as between 7 am and 10 pm on weekdays, which aligns with the SFE contract definition.

Appendix A

Detailed Market Analysis

AUSTRALIAN ENERGY REGULATOR

28 November – 4 December 2010

There were 6 occasions throughout the week when the spot price in Victoria or South Australia was less than $-100/MWh. Details of the price outcomes and market conditions at the time are presented below.

Victoria:

Sunday, 28 November

5 am	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	-108	0	0
Demand (MW)	3928	4034	4039
Available capacity (MW)	9586	9668	9663

Conditions at the times saw demand around 110 MW lower than forecast and available capacity around 80 MW lower than that forecast.

The Alcoa Portland–Heywood–Moorabool No.1 line had been out of service from the previous day. On the day at 4.35 am a constraint used to manage the loss of the second Alcoa Portland–Heywood–Moorabool line bound and the 5-minute price in Victoria and South Australia fell to $-681/MWh and $-116/MWh respectively.

7 am	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	-146	20	9
Demand (MW)	4287	4376	4367
Available capacity (MW)	9536	9668	9663

Ramping constraints used to manage the outage of the Thomastown No.1 bus resulted in significant changes in interconnector limits out of Victoria. Ramping constraints are used to soften the impact of planned outages.

The ramping constraints saw the Vic-NSW interconnector's import limit force flow into New South Wales from 440 MW at 4.55 am to 1953 MW at 5.05 am and then on to 2086 MW at 5.15 am. Flows were counter price from 5.05 am to 6 am and from 6.20 am to 6.40 am. Negative settlement residues totalled around $157 000.

The Heywood interconnector's import limit changed from 31 MW into Victoria at 4.55 am to 231 MW into South Australia at 5.05 am and then on to 300 MW by 5.15 am. This flow was counter-price.

Murraylink's import limit changed from 172 MW into Victoria at 4.55 am to 23 MW at 5.05 am and then to 51 MW into South Australia by 5.15 am. This flow was counter-price.

The constraint used to manage the outage of the Thomastown No.1 bus was invoked at 6.35 am. The ramping constraints were revoked by 6.40 am.

These limit changes caused generation to be ramp down limited and as a result negative priced generation set the price in Victoria and South Australia. South Australia's 5-minute price fell to close to the price floor between 5.10 am and 6.45 am. In Victoria, at 6.45 am the outage constraint bound and the Victorian 5-minute price fell to $-998/MW.

South Australia:

Sunday, 28 November

5.30 am	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	-715	-2	-41
Demand (MW)	900	884	912
Available capacity (MW)	2288	2438	2636
6 am	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	-851	-43	-41
Demand (MW)	875	900	927
Available capacity (MW)	2249	2446	2639
6.30 am	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	-385	3	-41
Demand (MW)	883	908	937
Available capacity (MW)	2239	2440	2636
7 am	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	-439	3	-41
Demand (MW)	935	941	969
Available capacity (MW)	2218	2457	2640

Price outcomes in South Australia were impacted by the conditions in Victoria.

Detailed NEM Price and Demand Trends

for Weekly Market Analysis
28 November - 4 December 2010

AUSTRALIAN ENERGY REGULATOR

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

Financial year	QLD	NSW	VIC	SA	TAS
2010-11 ($/MWh) YTD	21	27	24	27	35
2009-10 ($/MWh) YTD	41	50	27	90	26
Change*	-50%	-45%	-13%	-70%	31%
2009-10 ($/MWh)	37	52	42	82	30

Table 2: NEM turnover

Financial year	NEM Turnover** ($, billion)	Energy (TWh)
2010-11 (YTD)	$2.212	88
2009-10	$9.643	206
2008-09	$9.413	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-10	22	37	28	28	70	0.579
Sep-10	22	24	23	27	21	0.386
Oct-10	20	23	21	25	18	0.358
Nov-10	18	23	19	26	29	0.346
Dec-10 (MTD)	21	24	21	25	19	0.045
Q3 2010	22	30	26	29	41	1.697
Q3 2009	26	28	25	27	24	1.918
Change*	-16%	5%	4%	6%	72%	-11.51%

Table 4: ASX energy futures contract prices at end of 6 December

	QLD		NSW		VIC		SA	
Q1 2011	Base	Peak	Base	Peak	Base	Peak	Base	Peak
Price on 29 Nov ($/MW)	35	55	43	68	45	78	52	100
Price on 06 Dec ($/MW)	34	54	41	65	44	75	53	97
Open interest on 06 Dec	1578	162	2651	309	2364	215	190	1
Traded in the last week (MW)	98	0	241	25	259	1	5	0
Traded since 1 Jan 10 (MW)	7042	209	8999	554	10860	403	423	1
Settled price for Q1 10($/MW)	40	65	44	68	50	89	83	160

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

Comparison:	QLD	NSW	VIC	SA	TAS	NEM
October 10 with October 09						
MW Priced <$20/MWh	499	679	527	481	686	2873
MW Priced $20 to $50/MWh	350	-128	-24	-98	-594	-494
November 10 with November 09						
MW Priced <$20/MWh	-73	-20	777	227	994	1906
MW Priced $20 to $50/MWh	393	95	-524	-110	-663	-809
December 10 with December 09 (MTD)						
MW Priced <$20/MWh	-653	148	1287	490	971	2244
MW Priced $20 to $50/MWh	504	-132	-808	-129	-722	-1286

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