WEEKLY ELECTRICITY MARKET ANALYSIS

AUSTRALIAN ENERGY REGULATOR

23 January - 29 January 2011

Summary

The weekly average spot price in Queensland and New South Wales reached $47/MWh and $76/MWh respectively this week as a result of a number of network problems on 24, 26 and 27 January. The average spot price was $27/MWh in Victoria and Tasmania and $30/MWh in South Australia.

Spot market prices

Figure 1 sets out the volume weighted average (VWA) prices for the week 22 January to 29 January and the 10/11 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 23 Jan - 29 Jan 2011	47	76	27	30	27
% change from previous week*	-37	179	10	9	12
10/11 financial YTD	25	29	23	26	31
% change from 09/10 financial YTD **	-45	-55	-35	-72	14

*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 is below $-100/MWh. 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 31 January 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[3] from the previous week.

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

	QLD		NSW		VIC		SA	
Calendar Year 2011	32	-1%	40*	13%	33	10%	35	5%
Calendar Year 2012	33*	2%	41*	4%	35*	2%	40	7%
Calendar Year 2013	39	0%	49	0%	45	-3%	69	0%
Three year average	35	0%	43	5%	38	2%	48	3%

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

Figure 3 shows the $300 cap contract price for Q1 2011 and calendar year 2011 and the percentage change[4] from the previous week.

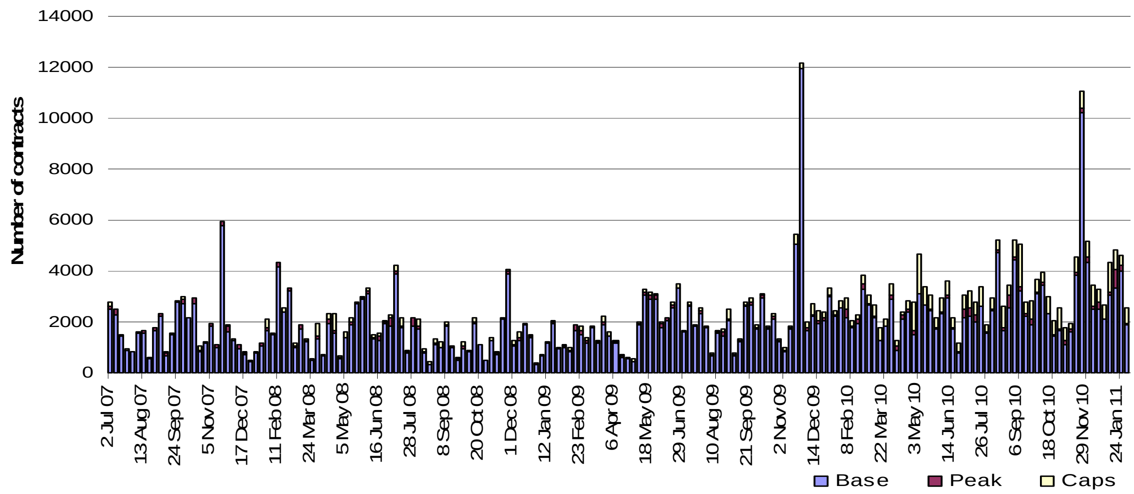
Figure 3: $300 cap contract prices ($/MWh)

	QLD		NSW		VIC		SA	
Q1 2011 (% change)	13*	2%	26*	172%	20*	106%	22	0%
2011 (% change)	6	3%	13	58%	7	53%	9	0%

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

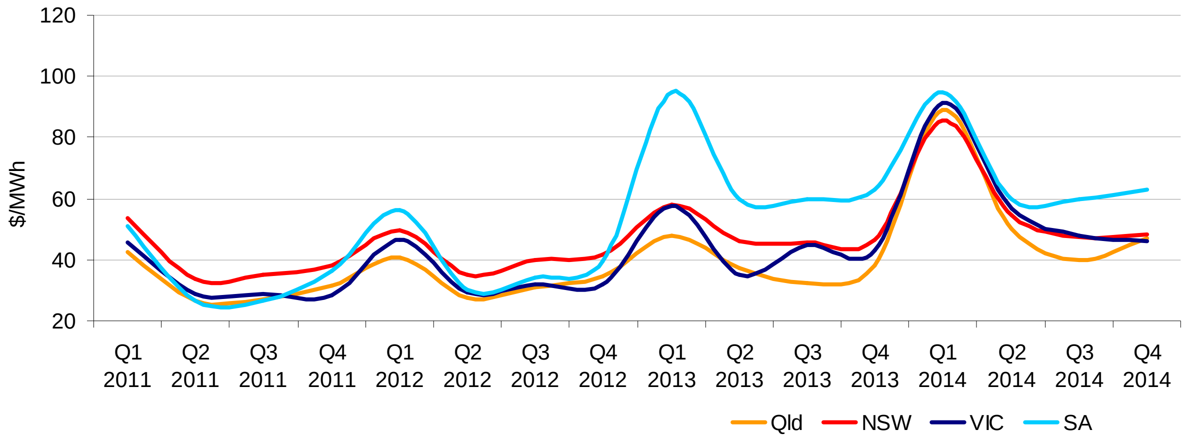


Source: d-cyphaTrade www.d-cyphatrade.com.au

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

[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.

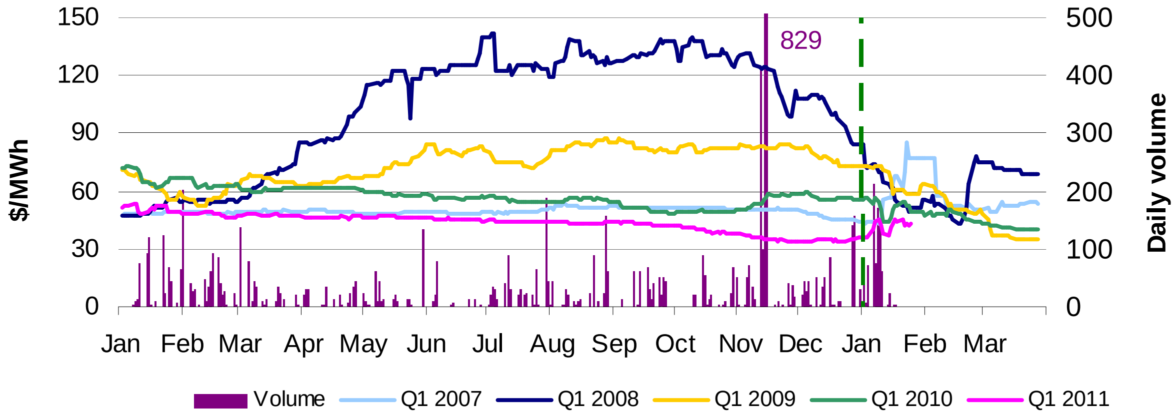
Figure 5: Quarterly base future prices Q1 2011 – Q4 2014



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

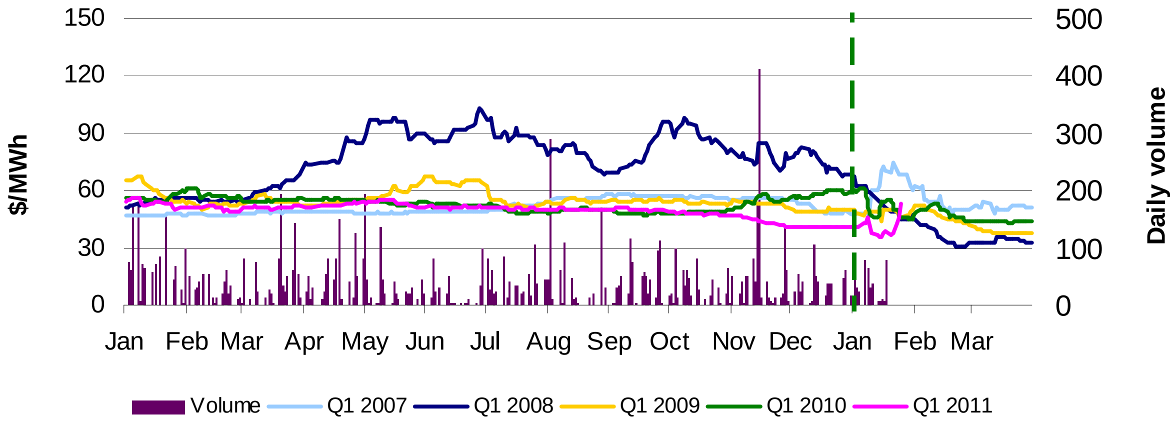
Figures 6-9 compare for each region the closing daily base contract prices for the first quarter of 2007, 2008, 2009, 2010 and 2011. Also shown is the daily volume of Q1 2011 base contracts traded. The vertical dashed line signifies the start of the Q1 period for which the contracts are being purchased.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



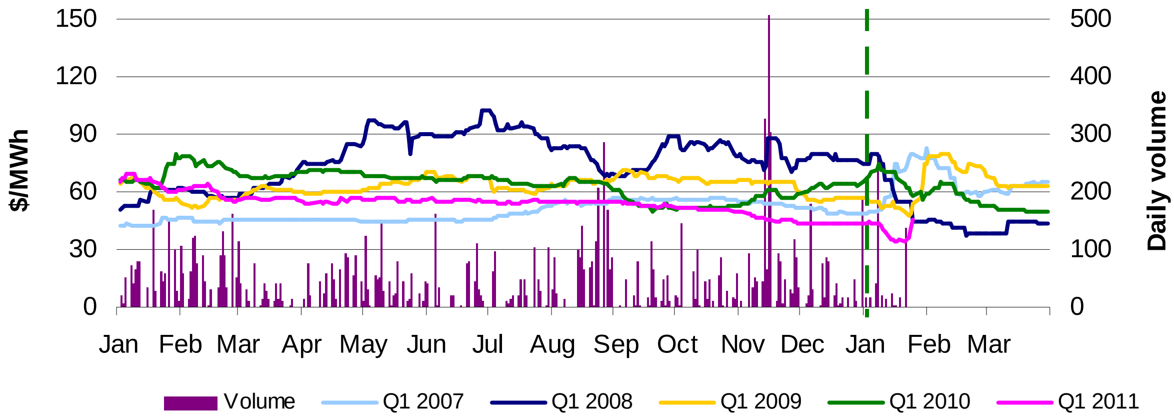
Source: d-cyphaTrade www.d-cyphatrade.com.au

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



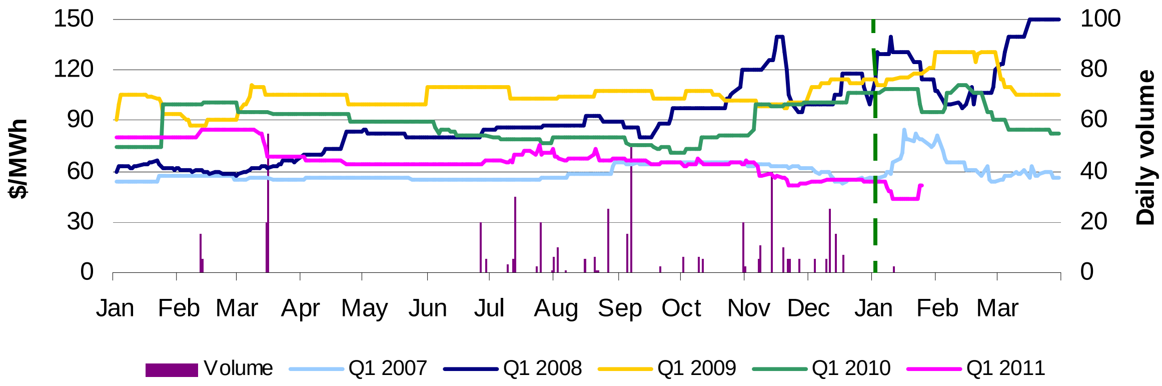
Source: d-cyphaTrade www.d-cyphatrade.com.au

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 137 trading intervals throughout the week where actual prices varied significantly from forecasts[5]. 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[6].

[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.

Figure 10: Reasons for variations between forecast and actual prices

	Availability	Demand	Network	Combination
% of total above forecast	23	53	0	4
% of total below forecast	4	16	0	0

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 535 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	-535	-14	-54	-71
NSW	-626	12	-1039	776
VIC	447	-299	508	-47
SA	128	-36	47	70
TAS	-165	120	8	2
TOTAL	-751	-217	-530	730

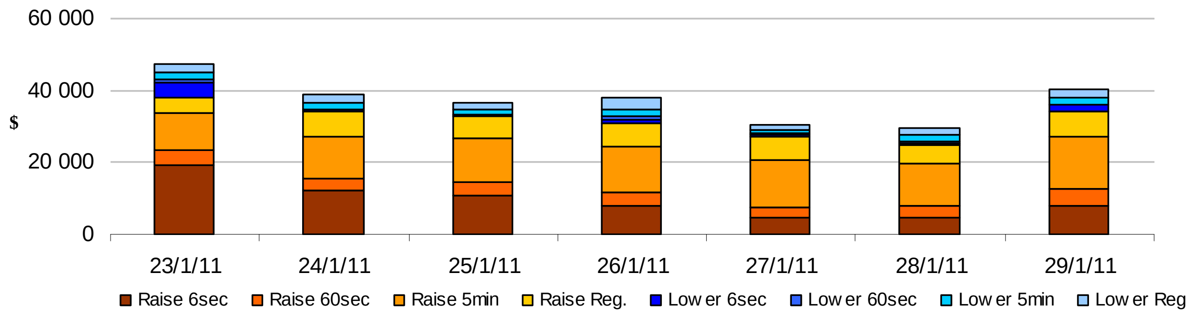
Ancillary services market

The total cost of frequency control ancillary services (FCAS) on the mainland for the week was $187 000 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 one 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



Australian Energy Regulator
March 2011

[7] A peak period is defined as between 7 am and 10 pm on weekdays.

Detailed Market Analysis

AUSTRALIAN ENERGY REGULATOR

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Queensland:

There was one occasion where the spot price in Queensland was greater than three times the Queensland weekly average price of $47/MWh and above $250/MWh. There was also one occasion where the spot price in Queensland was below $-100/MWh.

Monday, 24 January

1 PM	Actual	4 hr forecast	12 hr forecast
Price ($/MWh)	420.14	54.63	50.04
Demand (MW)	7117	7399	7321
Available capacity (MW)	11 154	11 352	11 469

2 PM	Actual	4 hr forecast	12 hr forecast
Price ($/MWh)	-318.23	51.29	49.99
Demand (MW)	7150	7295	7327
Available capacity (MW)	11 263	11 314	11 464

Conditions at the time saw demand and available capacity lower than forecast.

At around midday significant negative settlement residues began to accrue across QNI into New South Wales. At 12.40 pm, AEMO invoked a constraint to manage these negative settlement residues. Due to the nature of this constraint and its proximity to the regional reference node, the 5-minute price increased to $1018/MWh at 12.50 pm.

From 1 pm to 1.15 pm 5-minute prices remained above $750/MWh. However, in response to the constraint a number of generators rebid available capacity into negative price bands, setting the price at the price floor for five consecutive dispatch intervals from 1.20 pm.

As reported in the previous Electricity Weekly Analysis report, the floods in south east Queensland led to damage to transmission equipment. On 13 January a multiple outage constraint was invoked to manage the equipment outages. On 25 January the Blackwall to Rocklea 275 kV transmission line (which had been out of service since 11 January as a result of flood damage) returned to service. On 28 January the South Pine to Rocklea 275 kV transmission line (which was taken out of service on 12 January) and the Tarong to South Pine 275 kV transmission line (which was taken out of service on 12 January) returned to service.

New South Wales:

There were four occasions where the spot price in New South Wales was greater than three times the New South Wales weekly average price of $76/MWh and above $250/MWh.

Wednesday, 26 January

4.30 PM	Actual	4 hr forecast	12 hr forecast
Price ($/MWh)	284.09	118.50	284.09
Demand (MW)	11 883	12 172	12 167
Available capacity (MW)	11 974	12 707	12 431

8 PM	Actual	4 hr forecast	12 hr forecast
Price ($/MWh)	284.09	56.67	99.60
Demand (MW)	11 190	10 639	11 155
Available capacity (MW)	11 337	12 060	12 087

Conditions at the time saw demand lower than forecast for the 4.30 pm trading interval but 551 MW higher than forecast four hours ahead for the 8 pm trading interval. Available capacity was below forecast.

At 12.38 pm, Eraring Energy reduced the available capacity of Eraring power station by 50 MW (all of which was priced below $15/MWh). The reason given was "1233P condenser backpressure". A further two rebids at 4.28 pm and 5.45 pm saw a further 90 MW reduction in capacity available at Eraring Power Station related to "backpressure problems".

Over several rebids from 2.44 pm Delta Electricity reduced the available capacity of Vales Point and Wallerawang by a total of 660 MW (the majority of which was priced below $50/MWh). The reasons given were "1448P chemical issues et 1.5hrs::capacity change", "1504P back pressure problems – 4hrs::capacity limit" and "lake temperature management et5hrs".

Over two rebids at 4.28 pm and 5.45 pm, Eraring Energy reduced the available capacity of the Eraring power station by a total of 90 MW (all of which was priced below $35/MWh). The reasons given related to backpressure problems.

At 6.18 pm, Snowy Hydro reduced the available capacity at its Tumut3 Power Station by 250 MW (all of which was priced above $500/MWh) due to a "plant outage".

There were no other significant rebids.

Thursday, 27 January

1 PM	Actual	4 hr forecast	12 hr forecast
Price ($/MWh)	2609.75	125.89	99.60
Demand (MW)	12 520	12 225	11 877
Available capacity (MW)	12 066	12 885	13 184

1.30 PM	Actual	4 hr forecast	12 hr forecast
Price ($/MWh)	3955.63	149.70	118.70
Demand (MW)	12 484	12 371	12 015
Available capacity (MW)	12 174	12 917	13 216

Conditions at the time saw demand up to 295 MW greater than that forecast four hours ahead and up to 643 MW above the twelve hour ahead forecast. Available capacity was up to 819 MW lower than that forecast four hours ahead and up to 1118 MW lower than that forecast twelve hours ahead.

At 12.55 pm, a system normal constraint bound, reducing limits and flows from Victoria into New South Wales, and hence increasing the forecast price. In response to the higher forecast price, effective from 1 pm Snowy Hydro rebid a total of 2480 MW of available capacity at Tumut, Upper Tumut and Guthega into negative prices.

This in turn caused a different system normal constraint to bind, further reducing limits and flows into New South Wales from Victoria. The 5-minute price increased from $284/MWh at 12.50 pm to $12 400/MWh at 1 pm, before falling to $11 212/MWh at 1.10 pm. A reduction in 5-minute demand from 12 681 MW at 1.10 pm to 12 361 MW at 1.15 pm (in large part, according to AEMO, due to an aluminium potline reducing demand) saw 5-minute prices fall to around $30/MWh from 1.15 pm.

Over a number of rebids from 9.24 am, Delta Electricity reduced available capacity at its Vales Point, Colongra and Wallerawang power stations by a total of 378 MW. The reasons given included “0923P back pressure limit::capacity limit”, “1055P fabric filter limit capacity limit”, “1205P shaft vibration – capacity decrease” and “1244P milling problems wet coal 1 hr::capacity limit”. Further rebids across its portfolio from 11.11 am saw a total of 533 MW of available capacity shifted from prices below $990/MWh to above $12 200/MWh. The reasons given included “1109A price $149V$275 hgr NSW 30minpd 1030hrs v 1100hrs sl”, “1138A predispatch price higher fr $275 to $299, gas conservation” and “1206P lake temperature management”.

Over a number of rebids from 10.15 pm Macquarie Generation reduced the available capacity of its Bayswater Power Station by up to 670 MW (all of which was priced below $25/MWh). The reasons given were “P milling grindouts” and “P milling limit”.

At 12.55 pm, effective from 1.05 pm, Snowy Hydro rebid its ramp down rates to the minimum allowed level of 3 MW/min[8] at its Tumut 3, Upper Tumut and Guthega Power Stations. The reason given was “12:52 A NSW price hghr unfcast in dispatch”.

There was no other significant rebidding.

[8] See Rebidding and Technical Parameters Guideline (December 2009) at www.aer.gov.au.

Detailed NEM Price and Demand Trends

for Weekly Market Analysis
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Table 1: Financial year to date spot market volume weighted average price

Financial year	QLD	NSW	VIC	SA	TAS
2010-11 ($/MWh) YTD	25	29	23	26	31
2009-10 ($/MWh) YTD	44	64	36	93	28
Change*	-45%	-55%	-35%	-72%	14%
2009-10 ($/MWh)	37	52	42	82	30

Table 2: NEM turnover

Financial year	NEM Turnover** ($, billion)	Energy (TWh)
2010-11 (YTD)	$3.117	118
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)
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	23	23	17	19	17	0.315
Jan-11(MTD)	47	42	27	28	26	0.553
Q4 2010	21	23	19	23	21	1.050
Q4 2009	53	100	29	134	31	3.555
Change*	-61%	-77%	-35%	-83%	-30%	-70.47%

Table 4: ASX energy futures contract prices at end of 31 January

	QLD		NSW		VIC		SA	
Q1 2011	Base	Peak	Base	Peak	Base	Peak	Base	Peak
Price on 24 Jan ($/MW)	45	66	37	53	35	55	44	80
Price on 31 Jan ($/MW)	43	66	54	65	46	57	51	80
Open interest on 31 Jan	1651	163	2853	339	2665	215	217	9
Traded in the last week (MW)	33	0	101	0	159	0	0	0
Traded since 1 Jan 10 (MW)	8948	248	10449	606	12375	414	482	9
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
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						
MW Priced <$20/MWh	-526	-481	952	295	753	992
MW Priced $20 to $50/MWh	329	140	-399	-32	-343	-306
January 11 with January 10 (MTD)						
MW Priced <$20/MWh	-517	-983	-243	389	384	-969
MW Priced $20 to $50/MWh	-10	-205	16	186	-328	-341

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