WEEKLY ELECTRICITY MARKET ANALYSIS

AUSTRALIAN ENERGY REGULATOR

21 November – 27 November 2010

Summary

The weekly average spot prices ranged from $18/MWh in Queensland and Tasmania to $41/MWh in South Australia. The higher South Australian average resulted from network constraints that led to a spot price of $2398/MWh on Monday afternoon.

The spot price fell to $-156/MWh and $-662/MWh in Queensland early Tuesday morning and Saturday morning respectively. This was a result of network outages around Tamworth.

Significant negative spot prices also occurred on Saturday in South Australia, Victoria and Tasmania 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 20 November to 27 November 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 21 Nov - 27 Nov 2010	18	24	20	41	18
% change from previous week*	-4	6	12	83	-73
10/11 financial YTD	21	27	24	28	35
% change from 09/10 financial YTD **	-50	-46	-13	-70	34

*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. Details of these events are attached in Appendix A. Longer term market trends are attached in Appendix B[1].

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 29 November 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.

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[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.

[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.

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

	QLD		NSW		VIC		SA	
Calendar Year 2011	29*	2%	38	-1%	33	0%	38	-4%
Calendar Year 2012	33*	2%	41*	-1%	36*	0%	39	-2%
Calendar Year 2013	43	-1%	51	-5%	51	-2%	69	0%
Three year average	35	1%	43	-2%	40	-1%	49	-2%

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.

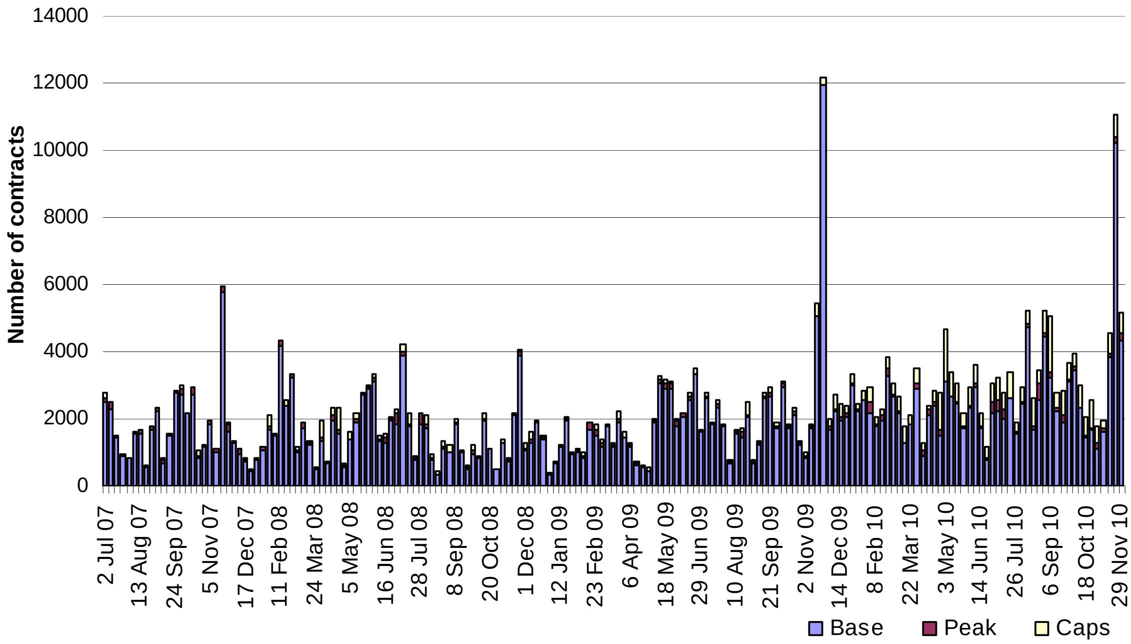
Figure 3: $300 cap contract prices ($/MWh)

	QLD		NSW		VIC		SA	
Q1 2011 (% Change)	10*	-1%	16*	-3%	18*	-1%	25*	-5%
2011 (% Change)	6	3%	11	0%	7	0%	10	-3%

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.

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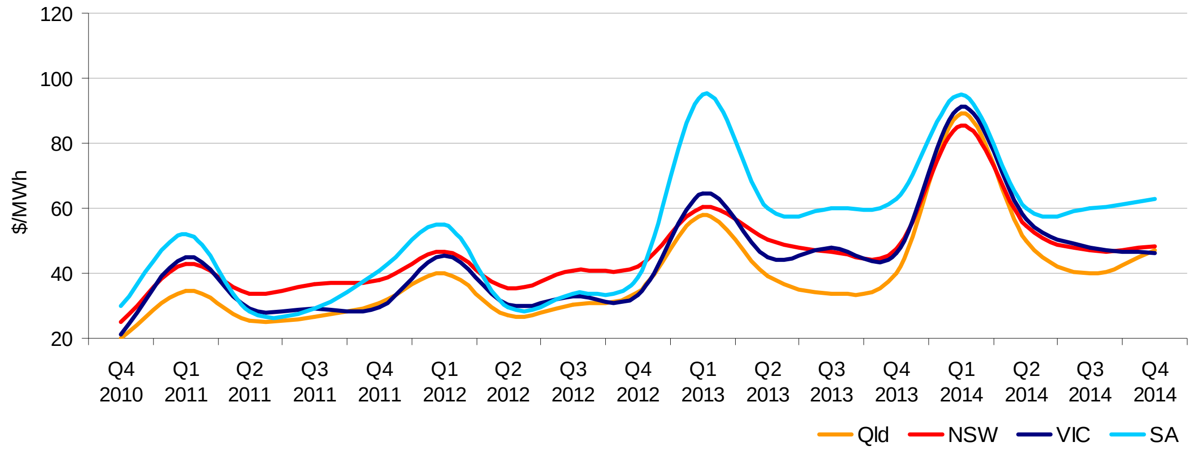
[4] Calculated on prices prior to rounding.

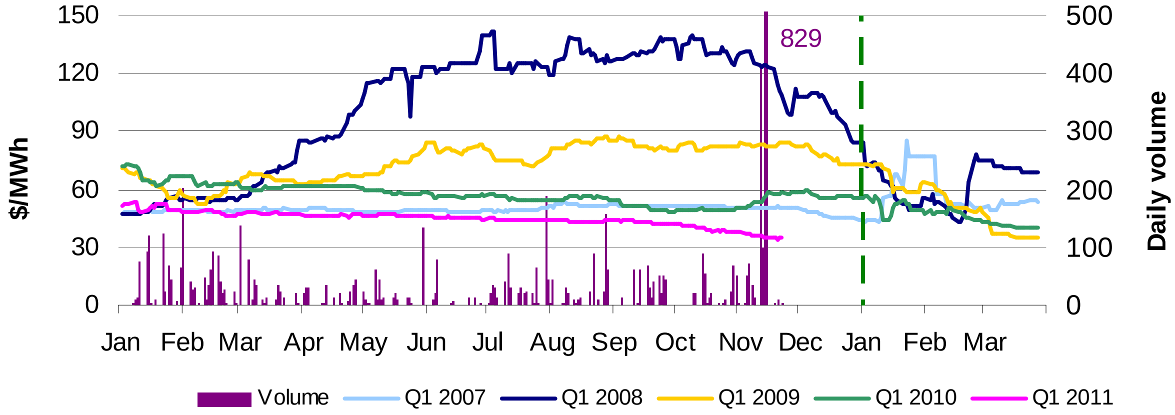
Figure 5: Quarterly base future prices Q4 2010 – Q4 2014



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

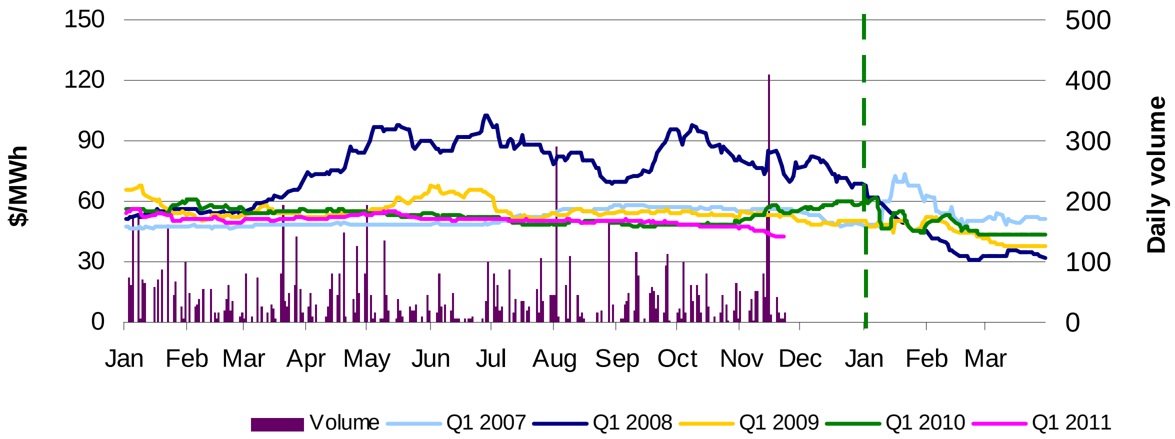
Figures 6-9 compare for each region the closing daily base contract prices for the first quarter of 2007, 2008, 2009, 2010 and 2011. Also shown is the daily volume of Q1 2011 base contracts traded. The vertical dashed line signifies the start of the Q1 period for which the contracts are being purchased.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



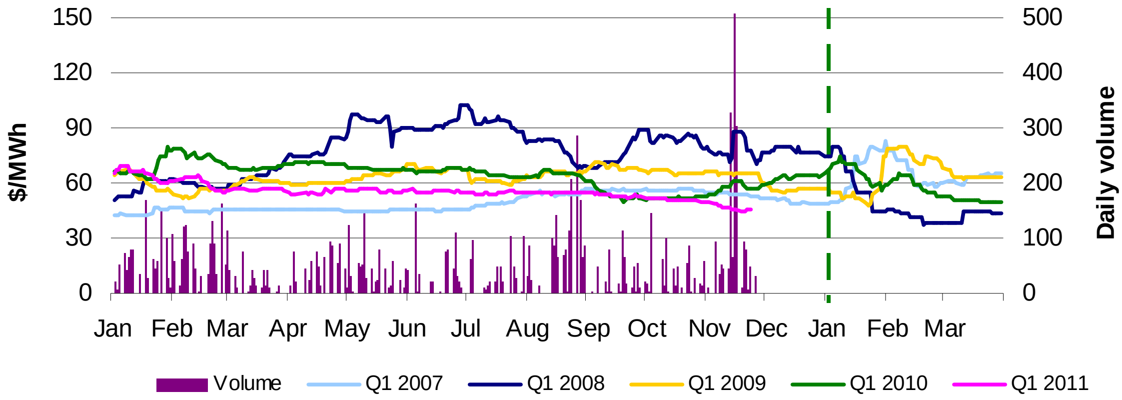
Source: d-cyphaTrade www.d-cyphatrade.com.au

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



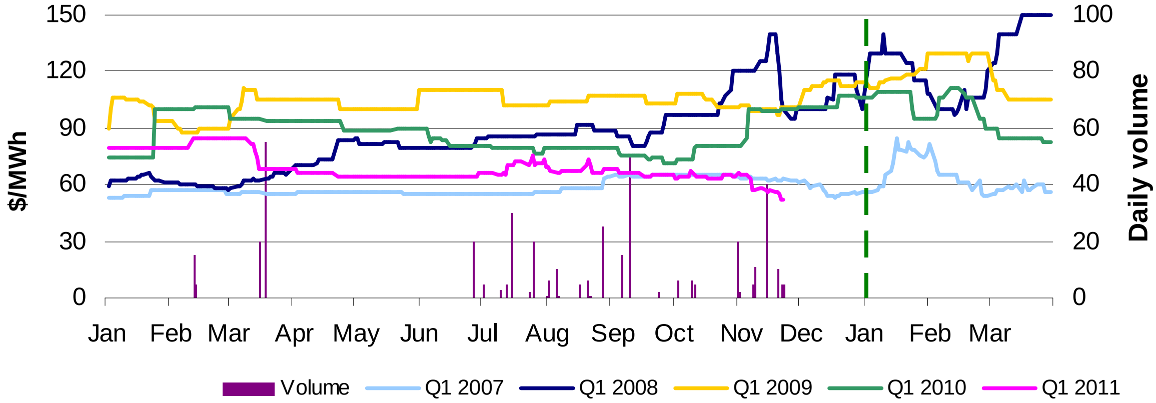
Source: d-cyphaTrade www.d-cyphatrade.com.au

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 61 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	2	58	2	0
% of total below forecast	18	3	9	8

[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 1 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	-1	4	-209	-215
NSW	-515	-91	-935	492
VIC	189	312	381	779
SA	231	75	271	407
TAS	212	-125	85	3
TOTAL	116	175	-407	1466

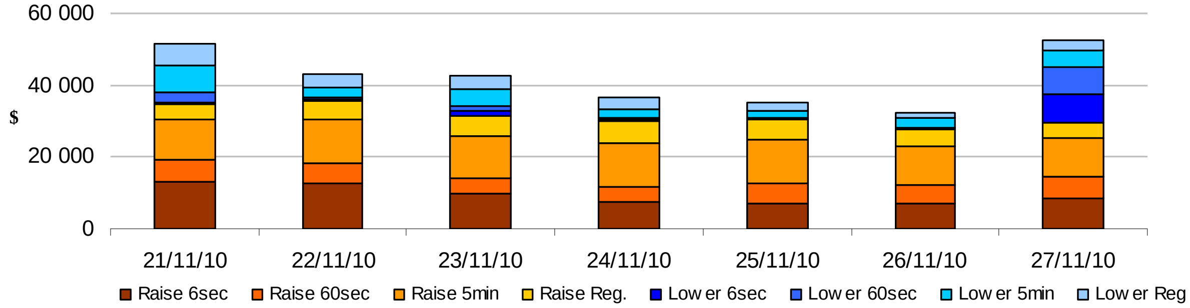
Ancillary services market

The total cost of frequency control ancillary services (FCAS) on the mainland for the week was $238 000 or less than one per cent of energy turnover on the mainland.

The total cost of FCAS in Tasmania for the week was $55 000 or around one 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
December 2010

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

Detailed Market Analysis

AUSTRALIAN ENERGY REGULATOR

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South Australia:

There were three occasions where the spot price in South Australia was greater than three times the South Australia weekly average price of $35/MWh and above $250/MWh.

Monday, 22 November

1:30 PM	Actual	4 hr forecast	12 hr forecast
Price ($/MWh)	299.10	150.50	44.77
Demand (MW)	2303	2257	2197
Available capacity (MW)	2460	2507	2663
2:00 PM	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	463.20	150.50	44.38
Demand (MW)	2377	2316	2237
Available capacity (MW)	2447	2545	2731
2:30 PM	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	2397.96	150.50	43.93
Demand (MW)	2375	2356	2259
Available capacity (MW)	2397	2561	2764

Conditions at the time saw demand slightly higher than forecast four hours ahead, but around 550 MW higher than that forecast 13 hours ahead. Available capacity was lower than forecast.

A system normal constraint affecting the 66kV network violated at around midday. This constraint manages the overloading of the Torrens Island to New Osborne lines on the trip of one of the other Torrens Island to New Osborne lines by limiting generation at Quarantine Power Station and increasing generation at Osborne. The violation was initially resolved by ElectraNet reconfiguring the 66kV network in the affected area.

This constraint violated again between 1.30 am and 2 pm and between 2.15 pm and 2.45 pm with the 5-minute price reaching $12 500/MWh at 2.15 pm. The constraint tried to 'constrain-off' generation at Quarantine but was targeting Quarantine below its minimum generation level. In response Origin Energy rebid the ramp rate down of Quarantine unit five to zero.

Origin Energy also delayed the return to service of Osborne Power station (60 MW of capacity) leaving it unable to assist in relieving the constraint and the constraint violated. ElectraNet reconfigured the network again relieving the violation, the constraint was blocked by AEMO at 2.45 pm and prices returned to previous levels.

At 2.05pm, effective from 2.15 pm TRU Energy reduced the capacity of Hallett by 83 MW to 100 MW. The reason given was ”Band adj due to unit trip”.

There was no other significant rebidding.

Significant Negative Prices

Queensland:

Tuesday, 23 November

5:00 AM	Actual	4 hr forecast	12 hr forecast
Price ($/MWh)	-156	22	20
Demand (MW)	4622	4697	4697
Available capacity (MW)	10 654	10 673	10 692

Conditions at the time saw low levels of demand and up to 5090 MW of capacity in Queensland priced below $0.01/MWh. There was an outage of the Liddell to Tamworth line and a Liddell 330kV bus outage was scheduled to commence at 5 am. Ramping constraints caused a 540 MW reduction in the limit for exports into New South Wales across QNI between 4.40 am and 4.50 am ahead of the outage. There were numerous generators either trapped in FCAS or constrained by their ramp down rate and as a result the 5-minute price at 4.50 am fell to the floor.

Saturday, 27 November

5:00 AM	Actual	4 hr forecast	12 hr forecast
Price ($/MWh)	-662	14	14
Demand (MW)	4506	4545	4559
Available capacity (MW)	10 660	10 713	10 891
5:30 AM	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	-156	14	0
Demand (MW)	4691	4827	4569
Available capacity (MW)	10 622	10 698	10 743

Conditions at the time saw low levels of demand and up to 4770 MW of capacity in Queensland priced below zero. There was an outage of the Armidale to Tamworth line. Ramping constraints caused a 700 MW reduction in the limit for exports into New South Wales across QNI between 4.30 am and 5 am ahead of the outage. There were numerous generators either trapped in FCAS or constrained by their ramp down rate and as a result the 5-minute price fell to the floor from 4.45 am to 5.05 am.

Victoria:

Saturday, 27 November

5:00 AM	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	-40	111	25
Demand (MW)	4509	4559	4434
Available capacity (MW)	9973	9973	9683

Ramping constraints used to manage the outage of one of the Alcoa Portland–Heywood–Moorabool 500kV lines and the Thomastown bus resulted in significant changes in interconnector limits out of Victoria. Ramping constraints are used to soften the impact of planned outages. These ramping constraints were invoked the day before from around 10 pm and had an impact on forecast prices in Victoria, South Australia and Tasmania.

The ramping constraints saw the Heywood interconnector import limit forcing flow into South Australia at 23 MW at 4.10 am to 187 MW at 4.15 am and then on to 301 MW by 4.25 am. This flow was counter-price.

Murraylink's import limit changed from 160 MW into Victoria at 4.30 am to 9 MW over a couple of dispatch intervals.

Basslink's export limit changed from 61 MW into Victoria at 4.30 am to 443 MW into Tasmania by 5 am. This flow was counter-price.

The Vic-NSW interconnector's import limit was forcing flow into New South Wales from 480 MW at 4.10 am to 1186 MW at 4.15 am and then on to 1585 MW at 4.30 am.

These limit changes caused generation to be ramp down limited and as a result negative priced generation set the price in Victoria, South Australia and Tasmania. Tasmania's 5-minute price fell to $-992/MWh while South Australia's and Victoria's 5-minute price fell to $-363/MWh and $-288/MWh respectively.

Once the ramping constraint was revoked the interconnector limits and prices returned to previous levels.

South Australia:

Saturday, 27 November

5:00 AM	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	-256	-280	15
Demand (MW)	1115	1086	1067
Available capacity (MW)	2225	2318	2337
5:30 AM	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	-112	-280	7
Demand (MW)	1114	1103	1084
Available capacity (MW)	2150	2311	2358

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

Tasmania:

Saturday, 27 November

5:00 AM	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	-463.84	-775.12	11.65
Demand (MW)	913	941	892
Available capacity (MW)	2312	2312	2312
5:30 AM	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	-300.18	-761.18	0.89
Demand (MW)	975	959	912
Available capacity (MW)	2312	2312	2312

Price outcomes in Tasmania were impacted by the conditions in Victoria.

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 ($/MWh) YTD	21	27	24	28	35
2009-10 ($/MWh) YTD	42	50	28	92	26
Change*	-50%	-46%	-13%	-70%	34%
2009-10 ($/MWh)	37	52	42	82	30

Table 2: NEM turnover

Financial year	NEM Turnover** ($, billion)	Energy (TWh)
2010-11 (YTD)	$2.133	84
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)
Jul-10	22	28	27	31	31	0.495
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 (MTD)	18	23	19	28	31	0.317
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 29 November

	QLD		NSW		VIC		SA	
Q1 2011	Base	Peak	Base	Peak	Base	Peak	Base	Peak
Price on 22 Nov ($/MW)	35	56	43	70	45	78	58	105
Price on 29 Nov ($/MW)	35	55	43	68	45	78	52	100
Open interest on 29 Nov	1553	162	2569	304	2343	215	185	1
Traded in the last week (MW)	20	0	82	8	262	0	20	0
Traded since 1 Jan 10 (MW)	6944	209	8758	529	10601	402	418	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
September 10 with September 09						
MW Priced <$20/MWh	495	762	85	655	73	2069
MW Priced $20 to $50/MWh	344	-417	125	-167	299	186
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 (MTD)						
MW Priced <$20/MWh	-77	29	740	219	983	1893
MW Priced $20 to $50/MWh	389	113	-531	-106	-666	-802

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