

# WEEKLY ELECTRICITY MARKET ANALYSIS



AUSTRALIAN ENERGY  
REGULATOR

16 May – 22 May 2010

## Summary

The weekly average spot price in Tasmania reached \$125/MWh, driven by a number of high spot prices during the week, including one spot price of \$6750/MWh on 22 May. Under clause 3.13.7 of the Electricity Rules, the AER is required to issue a separate report into the circumstances that led to the spot price exceeding \$5000/MWh.

The weekly average spot price in the other regions ranged from \$21/MWh in Queensland to \$39/MWh in Victoria.

## Spot market prices

Figure 1 sets out the volume weighted average prices for the week 16 May to 22 May 2010 and the financial year to date 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 16 May – 22 May 2010	21	32	39	36	125
% change from previous week*	-20	-2	14	10	140
09/10 financial YTD	39	55	43	88	30
% change from 08/09 financial YTD**	6	26	-15	21	-40

\*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 to date and the average spot price over the similar period 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<sup>1</sup>.

## Financial markets

Figures 2 to 9 show futures contract<sup>2</sup> prices traded on the Sydney Futures Exchange (SFE) as at close of trade on Monday 24 May 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<sup>3</sup> compared to 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 on the SFE 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 2011	34*	-2%	43*	-2%	39*	-2%	43	0%
Calendar Year 2012	37*	-3%	45	0%	41*	1%	48	0%
Calendar Year 2013	58	0%	61	0%	65	0%	69	0%
Three year average	43	-1%	50	-1%	48	0%	53	0%

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 the first quarter of 2011 and the 2011 calendar year and the percentage change<sup>4</sup> from the previous week.

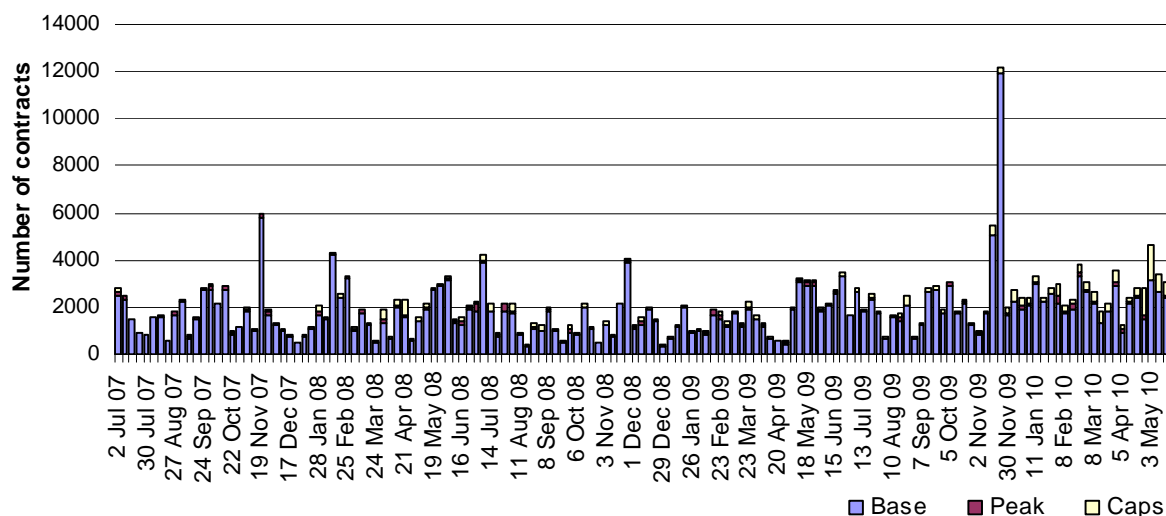
**Figure 3: \$300 cap contract prices (\$/MWh)**

	QLD		NSW		VIC		SA	
Q1 2011 (% Change)	20	0%	23*	-7%	27*	-6%	40	0%
2011 (% Change)	9	0%	13	-6%	11	-7%	14	0%

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**

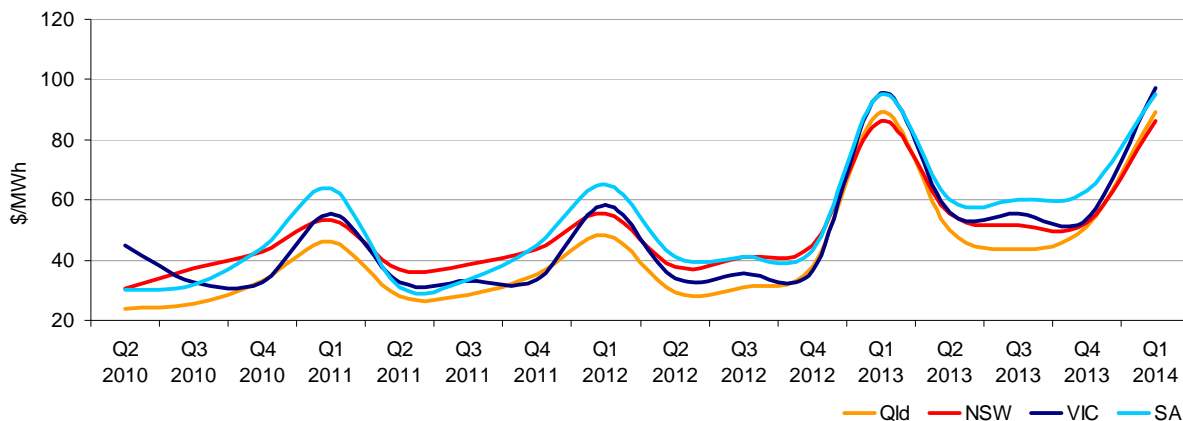


Source: d-cyphaTrade [www.d-cyphatrade.com.au](http://www.d-cyphatrade.com.au)

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

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

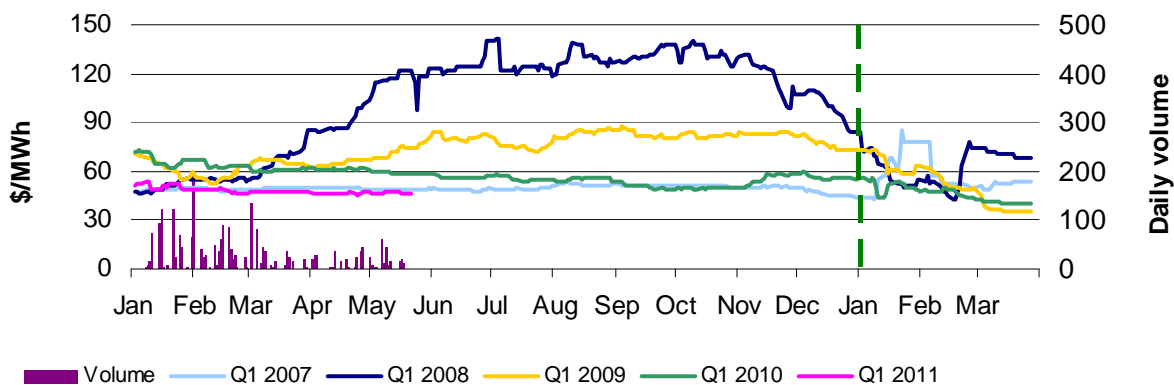
**Figure 5: Quarterly base future prices Q2 2010 – Q1 2014**



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

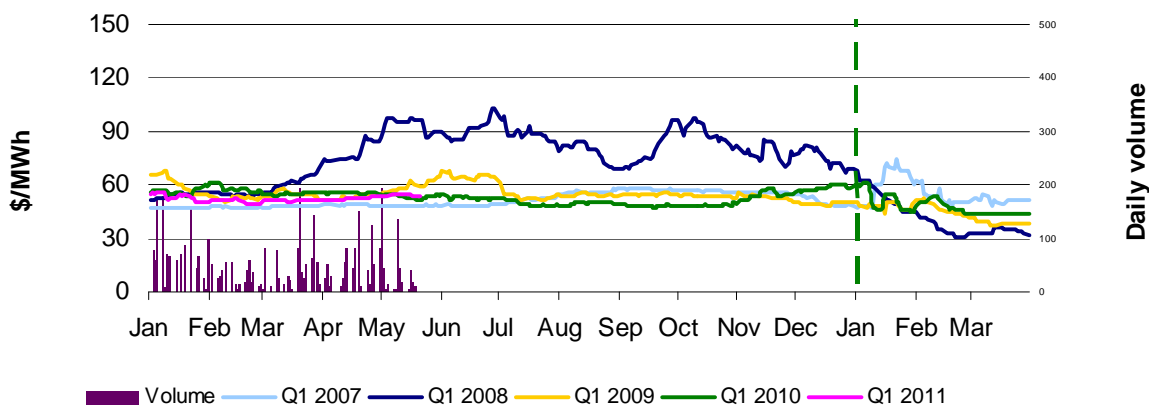
Figures 6-9 compare for each region the closing daily base contract prices for the first quarter of 2007, 2008, 2009, 2010 and 2011. Also shown is the daily volume of Q1 2011 base contracts traded. The vertical dashed line signifies the start of the Q1 period for which the contracts are being purchased.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



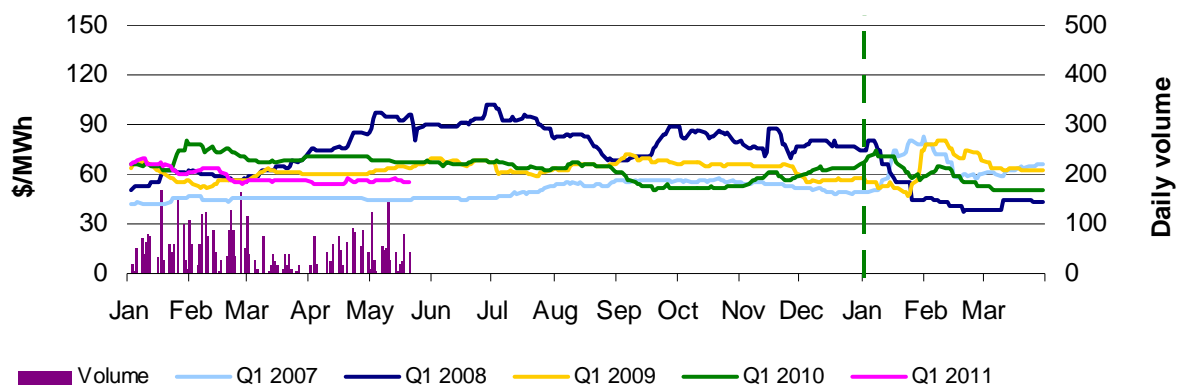
Source: d-cyphaTrade [www.d-cyphatrade.com.au](http://www.d-cyphatrade.com.au)

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



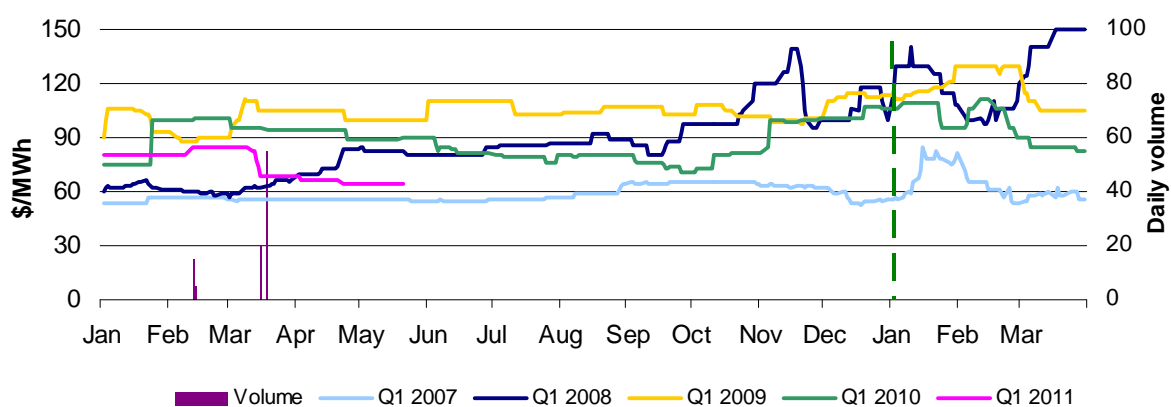
Source: d-cyphaTrade [www.d-cyphatrade.com.au](http://www.d-cyphatrade.com.au)

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



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

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



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.

\*\*This graph was modified on 23/7/2010 to correct an error in the original report.

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

<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.

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

	Availability	Demand	Network	Combination
% of total above forecast	2	47	0	2
% of total below forecast	46	2	0	1

### 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 193 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	193	13	593	12
NSW	471	252	545	413
VIC	-277	252	-20	175
SA	-57	189	129	116
TAS	-97	47	-87	93
<b>TOTAL</b>	<b>233</b>	<b>753</b>	<b>1,160</b>	<b>809</b>

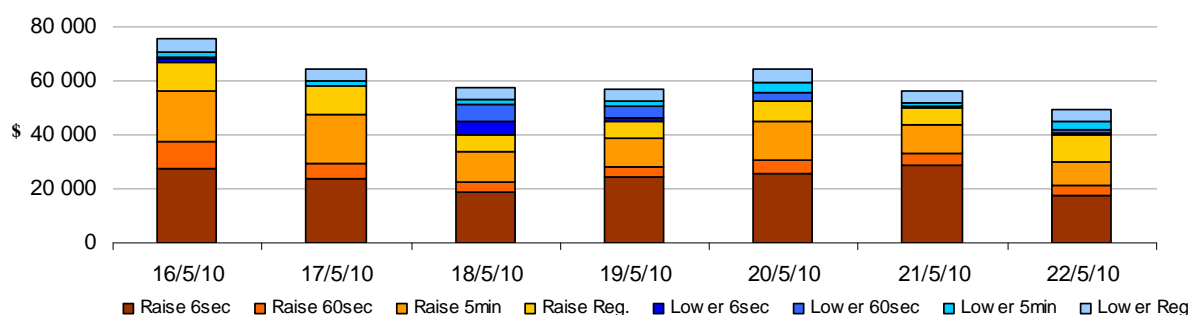
### Ancillary services market

The total cost of frequency control ancillary services (FCAS) on the mainland for the week was \$252 000 or less than one per cent of energy turnover on the mainland.

The total cost of FCAS in Tasmania for the week was \$173 000 or less than two 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, which aligns with the SFE contract definition.

## Detailed Market Analysis



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16 May – 22 May 2010

### Tasmania:

There were thirteen occasions where the spot price in Tasmania was greater than three times the Tasmania weekly average price of \$125/MWh and above \$250/MWh.

### Sunday, 16 May

6:30 am	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	2010.97	20.72	21.45
Demand (MW)	1066	1045	1046
Available capacity (MW)	1894	1901	1901

Conditions at the time saw demand and available capacity close to forecast.

In day-ahead offers, there was a step decrease in the availability of lower-priced capacity in Tasmania from the 6 am to the 6.30 am trading interval. While all of the capacity (1901 MW) for the 6 am trading interval was priced below \$500/MWh, 57 per cent (1057 MW) of capacity for the 6.30 am trading was priced above \$9000/MWh. All of the high-price capacity was offered by Hydro Tasmania.

Non-scheduled generation in Tasmania fell from 77 MW at 5.40 am to 34 MW at 6.10 am, contributing to an increase in demand<sup>8</sup> from 1060 MW at 5.40 am to 1116 MW at 6.10 am.

The increase in demand, coincident with the step decrease in capacity offered in low price bands resulted in the dispatch of high-priced generation. As a result, the 5-minute price increased from \$24/MWh at 6 am to \$1000/MWh at 6.05 am, to \$9995/MWh at 6.10 am and then falling to \$1000/MWh at 6.15 am. Prices returned to previous levels by 6.20 am, primarily due to an apparent demand side response to the high prices that led to a reduction in demand by around 140 MW.

There was no significant rebidding.

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<sup>8</sup> The output from non-scheduled generators is treated as negative demand, so any variation in their output is reflected in the demand that must be met by scheduled generators (for example, a 10 MW decrease from a non-scheduled generator is treated as a 10 MW increase in demand).

**Monday, 17 May**

<b>6:30 am</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	1749.75	100.28	100.28
Demand (MW)	1231	1249	1248
Available capacity (MW)	2132	2132	2132

Conditions at the time saw demand close to forecast and available capacity as forecast.

Similar to Sunday 16 May, in day-ahead offers, there was a step decrease in the availability of lower-priced capacity in Tasmania and consequent increase in high-priced capacity from the 6 am to the 6.30 am trading interval. While only 40 MW (2 per cent) of capacity for the 6 am trading interval was priced above \$9000/MWh, 1249 MW (59 per cent) of capacity was priced at above \$9000/MWh for the 6.30 am trading interval. The majority of this high-priced capacity was offered by Hydro Tasmania.

For the 6.05 am dispatch interval around 70 MW of generation was trapped in frequency control ancillary services. Non-scheduled generation output in Tasmania fell at around the same time. This, combined with the step decrease in low-priced capacity, resulted in the dispatch of high-priced generation. The 5-minute dispatch price in Tasmania increased from \$38/MWh at 6 am to \$9996/MWh at 6.10 am.

Prices reduced to below \$101/MWh at 6.15 am when a rebid by Aurora Energy became effective, which shifted capacity from high price bands to low price bands.

There was no other significant rebidding.

**Saturday, 22 May**

<b>7:30 am</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	472.05	25.71	9998.10
Demand (MW)	1239	1193	1192
Available capacity (MW)	2131	2164	2020
<b>8 am</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	474.55	35.21	9995.26
Demand (MW)	1253	1261	1260
Available capacity (MW)	2137	2164	2020

**Saturday, 22 May (cont.)**

<b>9 am</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	1710.04	42.08	279.34
Demand (MW)	1392	1349	1349
Available capacity (MW)	2124	2164	2020
<b>9:30 am</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	2000.04	39.66	9998.14
Demand (MW)	1429	1365	1366
Available capacity (MW)	2124	2164	2020
<b>10 am</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	1710.13	39.46	2334.09
Demand (MW)	1446	1350	1351
Available capacity (MW)	2124	2164	2020
<b>10:30 am</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	840.26	39.26	9998.10
Demand (MW)	1429	1364	1327
Available capacity (MW)	2040	2080	1936
<b>11 am</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	840.26	39.66	2000.28
Demand (MW)	1399	1338	1302
Available capacity (MW)	2040	2080	1936
<b>6 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	3747.20	53.68	51.98
Demand (MW)	1542	1490	1404
Available capacity (MW)	2164	2164	2164



**Saturday, 22 May (cont.)**

<b>6:30 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	6750.00	52.98	51.15
Demand (MW)	1491	1505	1435
Available capacity (MW)	2164	2164	2164
<b>7:30 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	550.26	47.65	36.50
Demand (MW)	1485	1472	1392
Available capacity (MW)	2164	2164	2164
<b>9:30 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	550.36	40.20	39.56
Demand (MW)	1436	1362	1293
Available capacity (MW)	2164	2164	2164

Conditions at the time saw demand up to 96 MW greater than that forecast four hours ahead and 143 MW greater than that forecast 12 hours ahead. Available capacity was close to forecast.

For most of the day, up to 1078 MW (50 per cent) of available capacity was priced at above \$9000/MWh in day-ahead offers (excluding the evening peak from 6 pm to 8.30 pm where only 166 MW was priced day-ahead at above \$9000/MWh). The majority of the high-priced capacity was offered by Hydro Tasmania.

Actual spot prices were higher than forecast four hours ahead for all trading intervals, but at times were significantly lower than forecast 12 hours ahead. These forecast prices were lower 4 hours ahead than 12 hours ahead due to an increase in imports into Tasmania across the Basslink interconnector. Import limits into Tasmania were forecast to be around 350 MW twelve hours ahead but around 440 MW four hours prior to dispatch.

With respect to the high prices in the morning, there was only 150 MW or less capacity priced between \$10/MWh and \$2000/MWh and therefore small reductions in import capability, rebidding of capacity into high price bands or increases in demand, had the potential to result in significant increases in the spot price.

At 7.19 am, Aurora Energy's Bell Bay unit one tripped from 40 MW to zero. All of this capacity was priced at zero. The unit returned to service at 3.30 pm.

With respect to some of the high prices in the afternoon, at 4.50 pm, effective for the 5.30 pm to 8 pm trading intervals, Hydro Tasmania rebid up to 624 MW of available capacity across its portfolio from prices below \$35/MWh to above \$9500/MWh. The reason given was "1635A TAS demand > forecast, p5 VIC prices < forecast SL".

There was no other significant rebidding.

The spot price reached \$6750/MWh for the 6.30 pm trading interval. In accordance with clause 3.13.7 of the Electricity Rules, the AER is required to issue a separate report into the circumstances that led to the spot price exceeding \$5000/MWh.

# Detailed NEM Price and Demand Trends

for Weekly Market Analysis  
16 May - 22 May 2010



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

Financial year	QLD	NSW	VIC	SA	TAS
2009-10 (\$/MWh) (YTD)	39	55	43	88	30
2008-09 (\$/MWh) (YTD)	37	43	51	73	50
Change*	6%	26%	-15%	21%	-40%
2008-09 (\$/MWh)	36	43	49	69	62

**Table 2: NEM turnover**

Financial year	NEM Turnover** (\$, billion)	Energy (TWh)
2009-10 (YTD)	\$8.942	183
2008-09	\$9.413	208
2007-08	\$11.125	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)
Jan-10	67	63	88	160	30	1.336
Feb-10	45	66	90	213	23	1.235
Mar-10	25	27	24	25	26	0.443
Apr-10	22	25	84	32	25	0.625
May-10 (MTD)	23	29	32	32	67	0.371
Q1 2010	46	52	67	134	27	3.014
Q1 2009	37	43	87	161	55	3.136
Change*	24%	20%	-23%	-17%	-52%	-3.89%

**Table 4: ASX energy futures contract prices at end of 24 May**

	QLD		NSW		VIC		SA	
	Base	Peak	Base	Peak	Base	Peak	Base	Peak
Q1 2011								
Price on 17 May (\$/MW)	47	82	55	93	57	102	64	100
Price on 24 May (\$/MW)	46	81	53	92	55	102	64	100
Open interest on 24 May	1827	117	3015	120	3470	20	45	0
Traded in the last week (MW)	47	0	75	10	170	0	0	0
Traded since 1 Jan 10 (MW)	2378	88	4091	110	4467	20	95	0
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
March 10 with March 09						
MW Priced <\$20/MWh	943	-1063	101	386	-6	361
MW Priced \$20 to \$50/MWh	-482	632	117	-164	596	699
April 10 with April 09						
MW Priced <\$20/MWh	1050	-23	-169	118	158	1134
MW Priced \$20 to \$50/MWh	-673	895	289	-240	636	907
May 10 with May 09 - MTD						
MW Priced <\$20/MWh	1310	-738	-613	139	392	490
MW Priced \$20 to \$50/MWh	-680	1147	-59	-150	133	392

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

\*\* Estimated value