

# WEEKLY ELECTRICITY MARKET ANALYSIS



AUSTRALIAN ENERGY  
REGULATOR

26 February - 3 March 2012

## Summary

For the eighth consecutive week there were volatile pricing outcomes in Queensland. The highest spot price for the week was \$349/MWh and occurred in Queensland at 2.30 pm on 3 March. The spot price exceeded \$100/MWh on 5 other occasions during the week in Queensland with negative spot prices of -\$60/MWh and -\$41/MWh also recorded.

Despite the high prices in Queensland, Tasmania recorded the highest average spot price for the week at \$38/MWh. Since the beginning of this year, spot prices in Tasmania have been around \$50/MWh most days during the minimum load period in the early hours of the morning, which is considerably higher than all other regions.

## Spot market prices

Figure 1 sets out the volume weighted average (VWA) prices for the week 26 February to 2 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 26 Feb - 3 Mar 2012	32	26	25	25	38
% change from previous week*	-21	-10	-16	-24	-1
11/12 financial YTD	30	30	27	33	32
% change from 10/11 financial YTD **	-19	-41	-7	-30	3

\*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 5 March 2012. Figure 2 shows the base futures

<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.

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.

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

	QLD		NSW		VIC		SA	
Calendar Year 2012	41	1%	43	0%	38	1%	39	0%
Calendar Year 2013	55*	2%	60*	1%	54*	1%	57	0%
Calendar Year 2014	56	-2%	61	-1%	55	-1%	66	0%
Three year average	51	0%	55	0%	49	0%	54	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 Q1 2012 and calendar year 2012 and the percentage change<sup>4</sup> from the previous week.

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

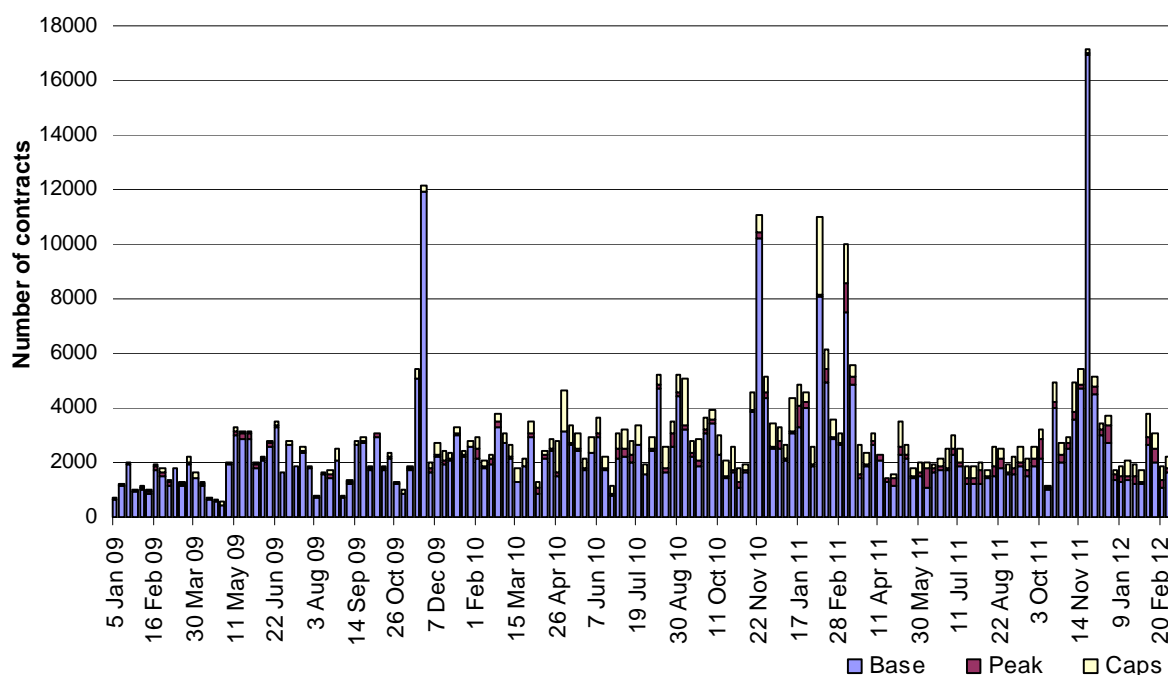
	QLD		NSW		VIC		SA	
Q1 2012 (% change)	3*	-20%	1*	-49%	1*	-60%	5	-10%
2012 (% change)	3	-6%	5	-3%	2	-12%	4	-3%

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**



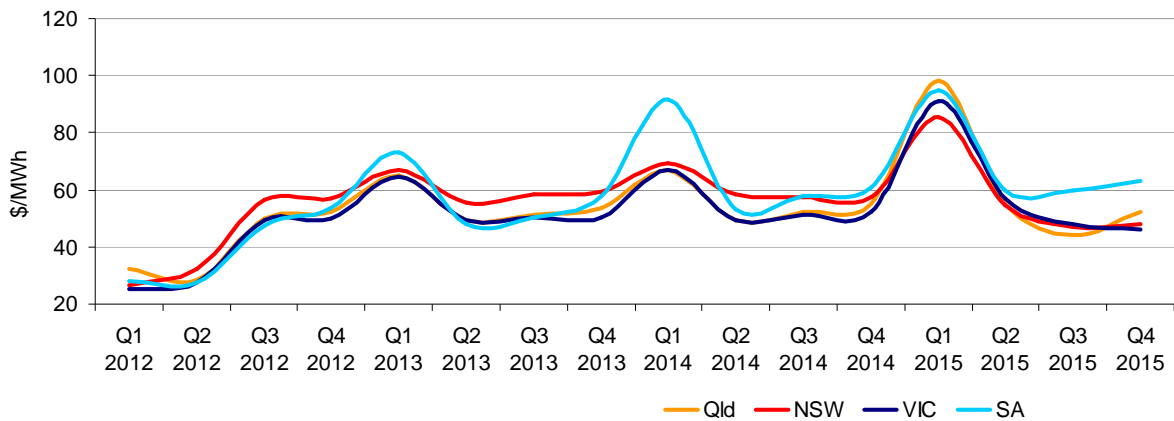
Source: d-cyphaTrade [www.d-cyphatrade.com.au](http://www.d-cyphatrade.com.au)

<sup>3</sup> Calculated on prices prior to rounding.

<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.

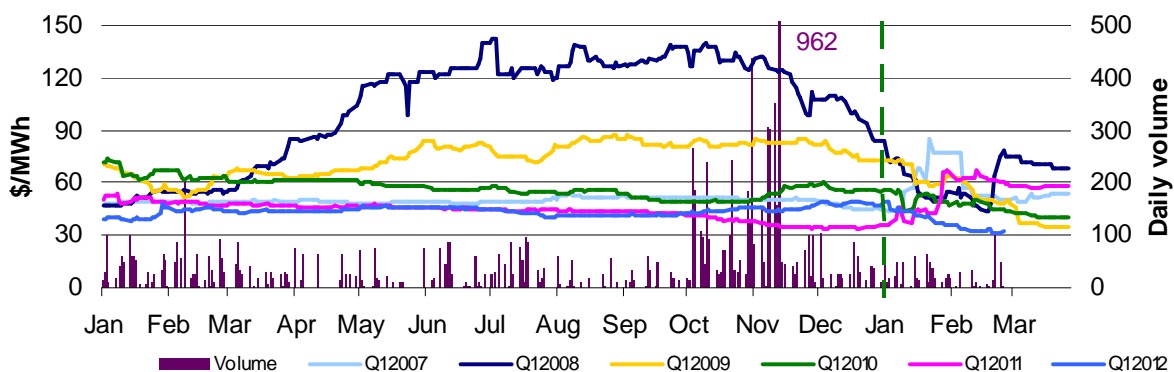
**Figure 5: Quarterly base future prices Q1 2012 – Q4 2015**



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

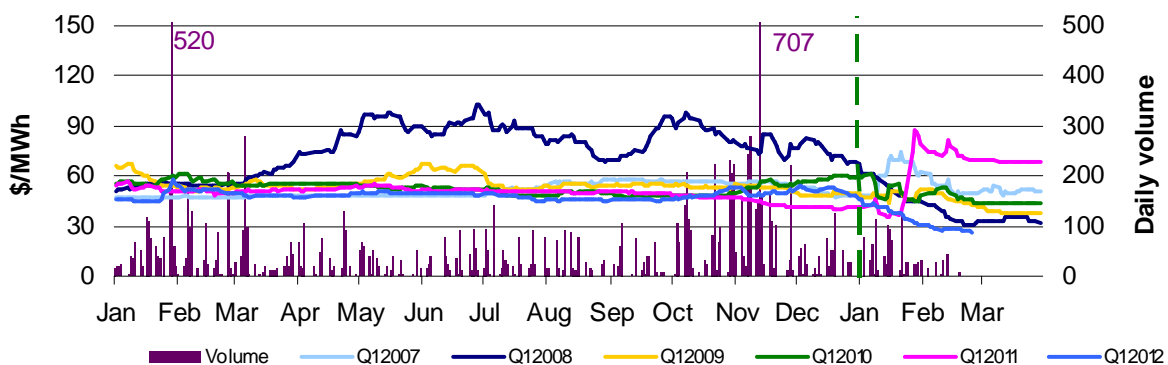
Figures 6-9 compare for each region the closing daily base contract prices for the first quarter of 2007, 2008, 2009, 2010, 2011 and 2012. Also shown is the daily volume of Q1 2012 base contracts traded. The vertical dashed line signifies the start of the Q1 period for which the contracts are being purchased.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



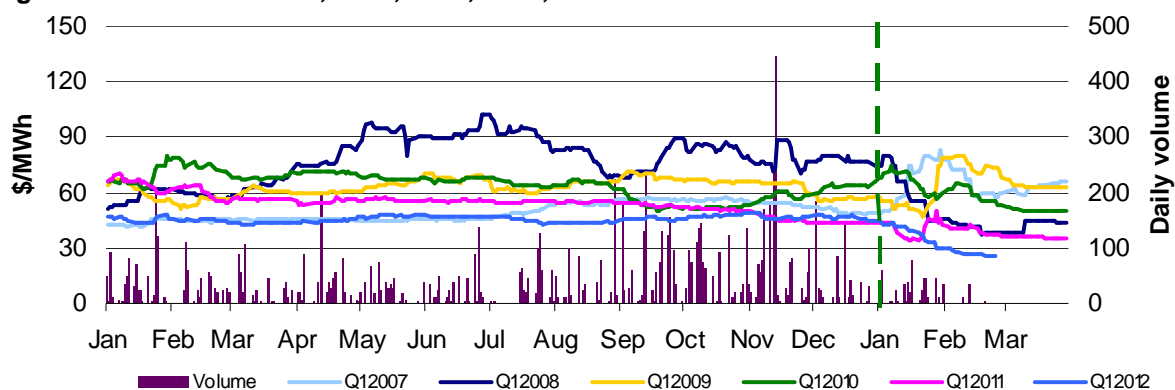
Source: d-cyphaTrade [www.d-cyphatrade.com.au](http://www.d-cyphatrade.com.au)

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



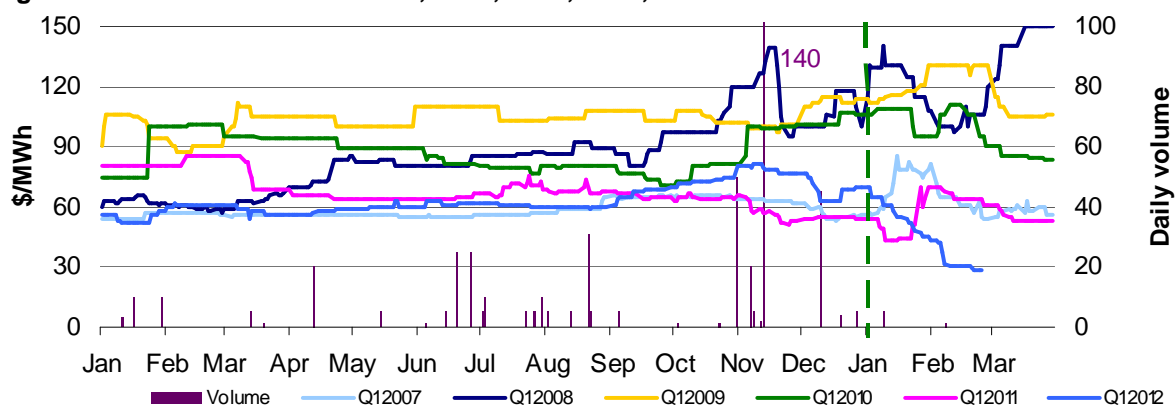
Source: d-cyphaTrade [www.d-cyphatrade.com.au](http://www.d-cyphatrade.com.au)

**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 122 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	5	34	10	1
% of total below forecast	47	2	0	1

<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 307 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	-307	-125	-411	30
NSW	500	570	986	290
VIC	53	-167	-314	-465
SA	-207	-109	-226	-339
TAS	-168	-232	-142	-47
<b>TOTAL</b>	<b>-129</b>	<b>-63</b>	<b>-107</b>	<b>-531</b>

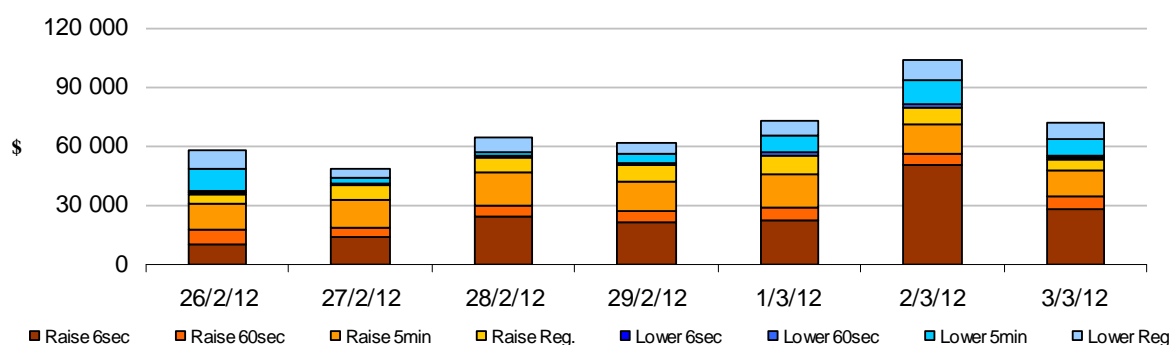
## Ancillary services market

The total cost of frequency control ancillary services (FCAS) on the mainland for the week was \$307 000 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 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**



## Australian Energy Regulator March 2012

<sup>7</sup> A peak period is defined as between 7 am and 10 pm on weekdays.

## Detailed Market Analysis

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**Queensland:**

There were four occasions where the spot price in Queensland was greater than three times the Queensland weekly average price of \$32/MWh and above \$250/MWh.

**Friday, 2 March**

<b>10:30 AM</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	317.25	27.19	27.57
Demand (MW)	6994	7053	7191
Available capacity (MW)	11 035	11 270	11 270

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

From 9.10 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 (the 855-871 constraint) bound. The constraint equation affects the majority of Queensland generators.

At 9.12 am, effective from 9.20 am, Stanwell rebid 330 MW of capacity at Stanwell from prices below \$50/MWh to above \$1800/MWh (the majority of this was priced above \$11 900/MWh). The reason given was “0912A Manage binding 855/871 constraint”.

At 9.36 am, effective from 9.45 am, Origin Energy rebid 220 MW of capacity at Darling Downs from prices above \$23/MWh to close to the floor price. The reason given was “0930A Constraint management – Q>>NIL\_855\_871 sl”.

At 9.49 am, effective from 10 am, Origin Energy rebid to reduce the availability from 260 MW to zero to avoid a start at Mount Stuart units 2 and 3. All of its capacity was priced above \$450/MWh. The reason given was “0935A avoid uneconomic start sl”.

At 10.17 am, effective from 10.25 am, CS Energy rebid 450 MW of capacity at Gladstone from prices below \$40/MWh to above \$10 900/MWh. The reason given was “1013A g/stone intraconnector constraint 855-871 sl”. CS Energy made further rebids of the same magnitude and price (for the 11 am, 11.30 am, 1 pm and 1.30 pm trading intervals), all citing the same rebid reason as the rebid at 10.17 am.

The QNI interconnector went from 895 MW of economic flows (i.e. from a low priced region to a high priced region) into New South Wales at 10.20 am, to 645 MW of counter price flows into NSW at 10.25 am. Around \$110 000 of negative settlement residues accrued over the 10.25 am and 10.30 am dispatch intervals. The 5-minute dispatch price reached \$1279/MWh at 10.25 am as low priced generation was ramped down causing higher priced generation to be dispatched. There was no other significant rebidding.

## Saturday, 3 March

<b>2 PM</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	251.26	21.81	22.43
Demand (MW)	6548	6636	6500
Available capacity (MW)	10 801	11 070	11 160
<b>2:30 PM</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	349.74	19.11	21.47
Demand (MW)	6397	6488	6502
Available capacity (MW)	10 587	10 995	11 160
<b>3:30 PM</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	265.06	17.70	22.63
Demand (MW)	6544	6454	6523
Available capacity (MW)	10 719	10 980	11 160

Conditions at the time saw demand close to that forecast and available capacity around 400 MW less than that forecast four hours ahead.

From 12.55 pm, a constraint managing the loading on the Calvale to Stanwell 275 kV line for the loss of the Calvale to Wurdong 275 kV line bound. The constraint equation affects the majority of Queensland generators.

At 1.30 pm, effective from 1.40 pm, Origin Energy rebid to reduce the availability at Mount Stuart unit three to zero to avoid a start (from 118 MW), all of which was priced above \$440/MWh. The reason given was “1325A avoid uneconomic start sl”. Over a further two rebids at 1.57 pm and 2.22 pm, effective 2.05 pm and 2.30 pm, Origin Energy rebid to reduce the availability at Mount Stuart units one and two to zero to avoid a start (from a combined availability of 284 MW), all of which was priced above \$500/MWh. The reasons given were “1415A avoid uneconomic start sl” and “1350A avoid uneconomic start sl”.

Rebids at 1.44 pm, 2.13 pm and 3.18 pm, effective from 1.55 pm, 2.20pm and 3.25 pm respectively, saw CS Energy shift 650 MW of capacity at Gladstone from prices below \$40/MWh to above \$10 900/MWh. The reasons given were “1340A g/stone intraconnector constraint 855\_871 management sl”, “1412A g/stone intraconnector constraint 855\_871 management sl” and “1436A g/stone intraconnector constraint 855\_871 management sl”.

Over two rebids at 2.53 pm and 3.03 pm, effective from 3 pm and 3.10 pm respectively, AGL Hydro rebid to reduce the availability at Yabulu power station to zero to avoid a start (from 155 MW). All of this capacity was priced at around \$310/MWh. The reasons given were “14:55A chg in dispatch:: price increase vs pd qld 152.85” and “15:00F unit triggered by market::avoid uneconomical start”.

Flows across the QNI interconnector changed from:

- 436 MW of economic flow into New South Wales at 1.50 pm, to 80 MW of counter price flows (but still into New South Wales) at 1.55 pm; and
- 630 MW of economic flows into New South Wales at 2.15 pm, to 357 MW of counter price flows (but still into New South Wales) at 2.20 pm

Around \$195 000 of negative settlement residues accrued over the high priced period.

The 5-minute dispatch price reached \$1353/MWh at 1.50 pm, \$1315/MWh at 2.20 pm, \$1312/MWh at 2.30 pm and \$1260/MWh at 3.30 pm as low priced generation was ramped down causing higher priced generation to be dispatched. There was no other significant rebidding.



# Detailed NEM Price and Demand Trends

for Weekly Market Analysis  
26 February - 3 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	50	29	47	31
Change*	-19%	-41%	-7%	-30%	3%
2010-11 (\$/MWh)	34	43	29	42	31

**Table 2: NEM turnover**

Financial year	NEM Turnover** (\$, billion)	Energy (TWh)
2011-12 (YTD)	\$3.995	135
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)	36	23	20	20	40	0.039
Q1 2012	33	26	26	28	38	1.004
Q1 2011	82	117	48	107	28	3.077
Change*	-59%	-78%	-46%	-74%	38%	-67.38%

**Table 4: ASX energy futures contract prices at end of 5 March 2012**

	QLD		NSW		VIC		SA	
	Base	Peak	Base	Peak	Base	Peak	Base	Peak
Q1 2012								
Price on 27 Feb (\$/MWh)	34	46	28	34	27	34	30	44
Price on 05 Mar (\$/MWh)	32	42	27	31	25	31	28	33
Open interest on 05 Mar	1134	258	2373	595	2133	302	293	5
Traded in the last week (MW)	174	132	51	37	2	4	0	0
Traded since 1 Jan 11 (MW)	11709	591	13896	1714	10434	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	-422	962	408	-396	-205	347
MW Priced \$20 to \$50/MWh	415	1432	-399	-104	-569	776

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

\*\* Estimated value