

WEEKLY ELECTRICITY MARKET ANALYSIS



AUSTRALIAN ENERGY
REGULATOR

26 August – 1 September 2012

Summary

Weekly average spot prices ranged from \$40/MWh in Tasmania to \$56/MWh in South Australia. Congestion around Gladstone in central Queensland and consequent rebidding led to volatile prices, counter-price flows and negative settlement residues across QNI throughout the week.

Spot market prices

Figure 1 sets out the volume weighted average (VWA) prices for the week 26 August to 1 September and the 12/13 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 August - 1 September 2011	49	54	51	56	40
% change from previous week*	-6	-4	-5	-16	-13
12/13 financial YTD	60	63	66	74	54
% change from 11/12 financial YTD **	111	102	114	108	71

*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 B¹.

Financial markets

Figures 2 to 9 show futures contract² prices traded on the Australian Securities Exchange (ASX) as at close of trade on Monday 3 September 2012. 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 changes³ from the previous week.

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 -> Australian energy industry -> Performance of the energy sector

² Futures contracts traded on the ASX 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 2013	58*	2%	60*	1%	55*	0%	59	-1%
Calendar Year 2014	55*	0%	58*	1%	54	0%	55	0%
Calendar Year 2015	55	0%	52*	-2%	52	0%	69	0%
Three year average	56	1%	57	0%	54	0%	61	0%

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

Figure 3 shows the \$300 cap contract price for Q1 2013 and calendar year 2013 and the percentage change⁴ from the previous week.

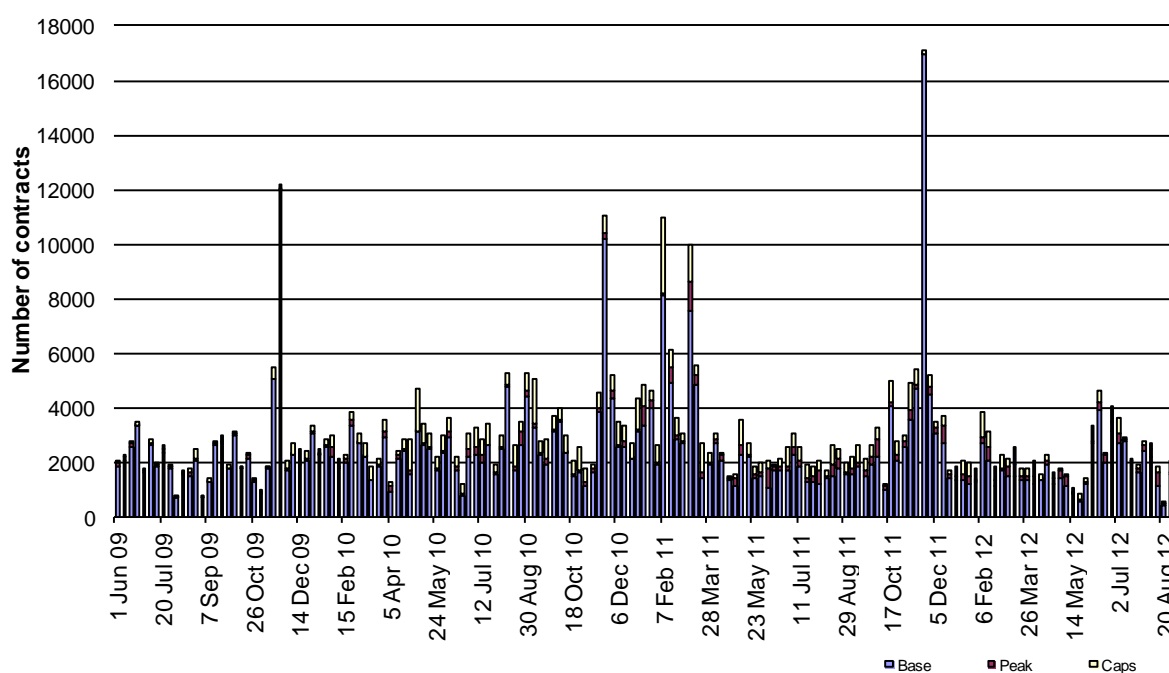
Figure 3: \$300 cap contract prices (\$/MWh)

	QLD		NSW		VIC		SA	
Q1 2013 (% change)	14*	5%	12*	-1%	12	0%	19	-1%
2013 (% change)	6	3%	6	-1%	5	0%	8	-1%

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

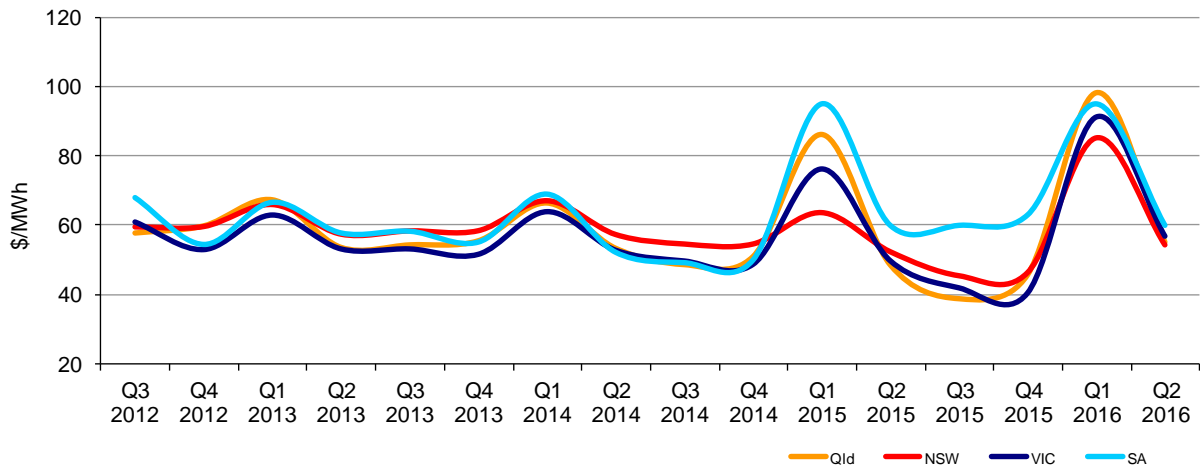


Source: d-cyphaTrade www.d-cyphatrade.com.au

⁴ Calculated on prices prior to rounding.

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

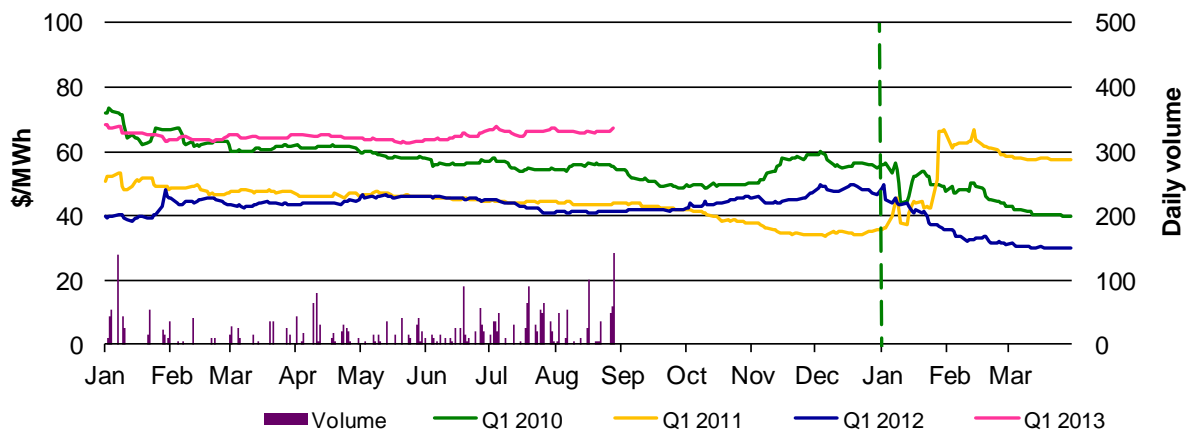
Figure 5: Quarterly base future prices Q3 2012 – Q2 2016



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

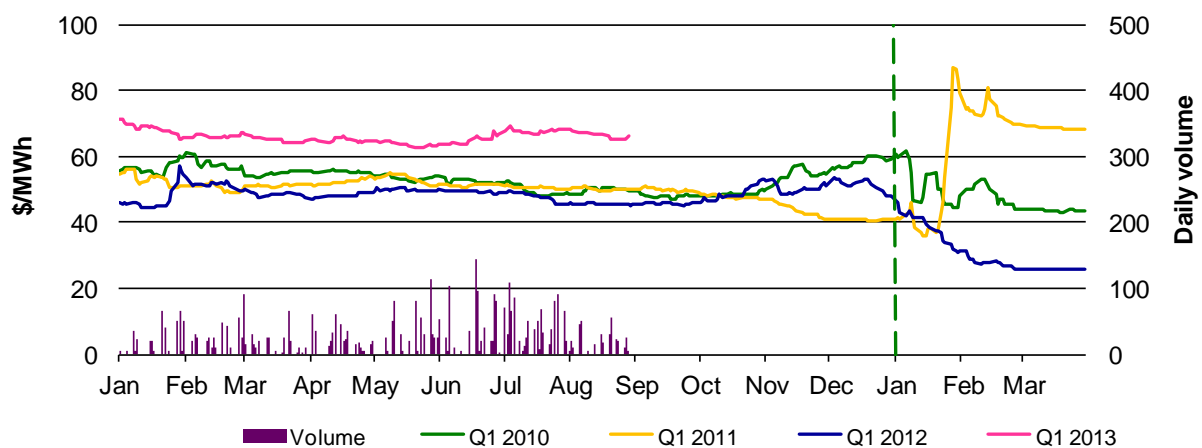
Figures 6-9 compare for each region the closing daily base contract prices for the first quarter of 2010, 2011, 2012 and 2013. Also shown is the daily volume of Q1 2013 base contracts traded. The vertical dashed line signifies the start of the Q1 period for which the contracts are being purchased.

Figure 6: Queensland Q1 2010, 2011, 2012 and 2013



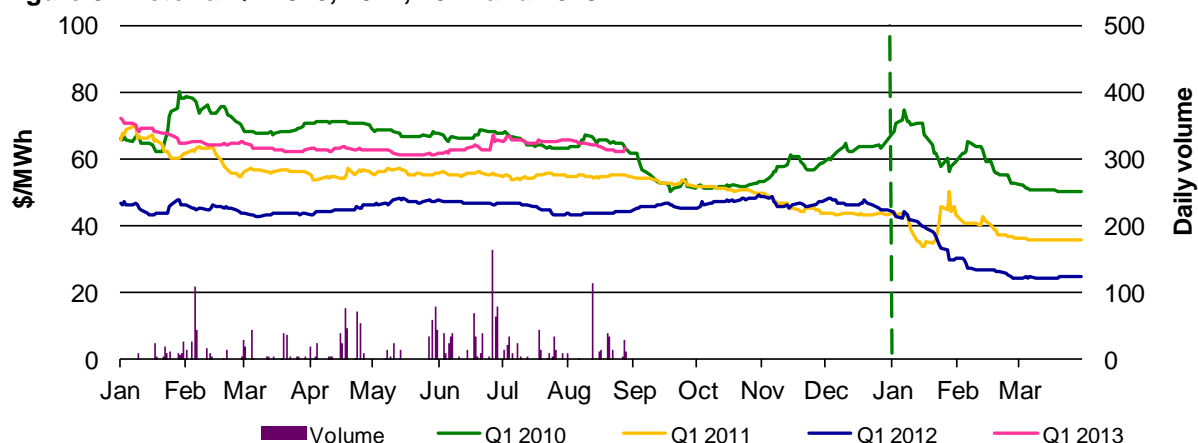
Source: d-cyphaTrade www.d-cyphatrade.com.au

Figure 7: New South Wales Q1 2010, 2011, 2012 and 2013



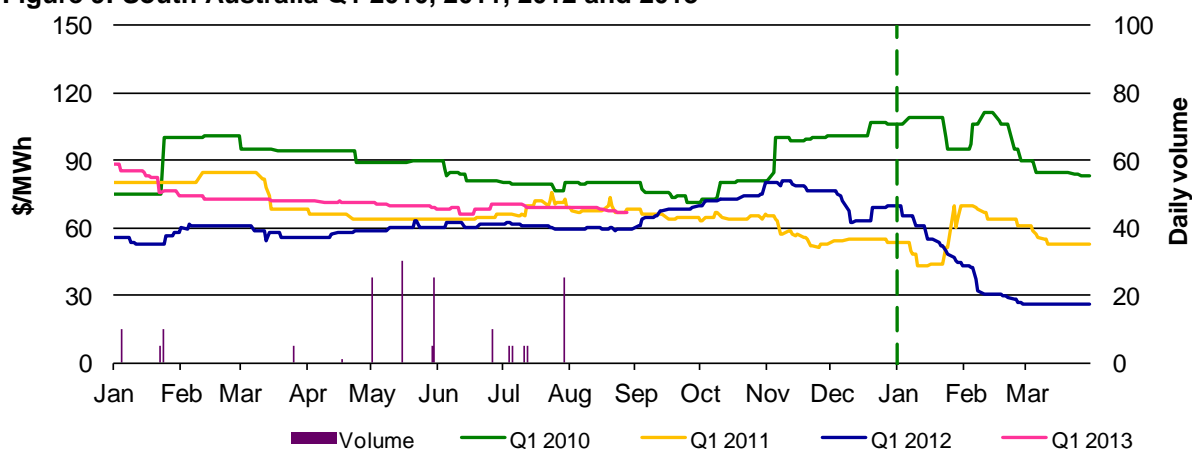
Source: d-cyphaTrade www.d-cyphatrade.com.au

Figure 8: Victoria Q1 2010, 2011, 2012 and 2013



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

Figure 9: South Australia Q1 2010, 2011, 2012 and 2013



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 33 trading intervals throughout the week where actual prices varied significantly from forecasts⁵. This compares to the weekly average in 2011 of 78 counts and the average in 2010 of 57. Reasons for these variances are summarised in Figure 10⁶.

Figure 10: Reasons for variations between forecast and actual prices

	Availability	Demand	Network	Combination
% of total above forecast	0	9	18	0
% of total below forecast	11	23	29	11

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 periods⁷. For example, in Queensland 811 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	811	-845	-230	-103
NSW	497	-311	164	11
VIC	-25	-107	186	-90
SA	-64	28	-129	-64
TAS	36	192	138	34
TOTAL	1255	-1043	129	-212

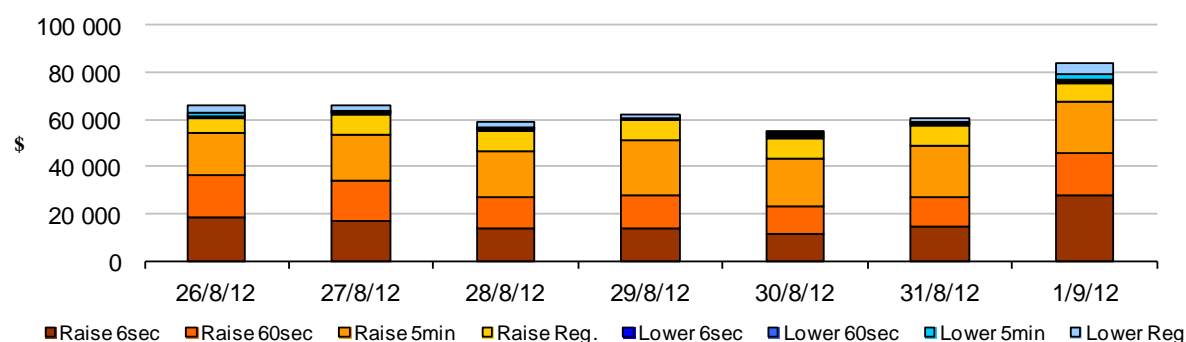
Ancillary services market

The total cost of frequency control ancillary services (FCAS) on the mainland for the week was \$420 000 or less than one per cent of energy turnover on the mainland.

The total cost of FCAS in Tasmania for the week was \$22 000 or less than 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 October 2012

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

26 August – 1 September 2012

Queensland

There were four occasions when the spot price in Queensland was greater than three times the Queensland weekly average price of \$49/MWh and above \$250/MWh. There were also eight occasions when the spot price was less than -\$100/MWh.

Sunday, 26 August

9:30 AM	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	-137.50	48.86	47.99
Demand (MW)	5323	5406	5330
Available capacity (MW)	9517	9532	9552
10 AM	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	-201.51	50.00	50.00
Demand (MW)	5373	5414	5340
Available capacity (MW)	9507	9527	9547
11 AM	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	-355.12	48.71	47.66
Demand (MW)	5132	5342	5260
Available capacity (MW)	9331	9505	9535
11:30 AM	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	-192.38	48.88	49.22
Demand (MW)	5138	5243	5230
Available capacity (MW)	9500	9505	9535
Midday	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	-307.42	47.45	48.37
Demand (MW)	5161	5202	5199
Available capacity (MW)	9494	9500	9530

12:30 PM	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	-307.01	46.86	46.54
Demand (MW)	5156	5169	5181
Available capacity (MW)	9492	9498	9528
1 PM	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	-146.56	48.77	46.23
Demand (MW)	5133	5203	5170
Available capacity (MW)	9522	9523	9523
2 PM	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	-369.52	42.21	46.05
Demand (MW)	5138	5106	5144
Available capacity (MW)	9500	9518	9518

Between 9 am and 3.30 pm, the Queensland 5-minute prices were extremely volatile, fluctuating between \$1427/MWh and -\$1000/MWh. The 5-minute price exceeded \$150/MWh on seven occasions and below -\$100/MWh on 26 occasions.

The volatile prices were driven by network congestion in central Queensland (on the 855 Calvale to Stanwell and 871 Calvale to Wurdong lines). The Q>>NIL_855_871 and Q>>NIL_871_855 constraints manage post contingent flows on the 855 and 871 lines. The constraints affect the majority of Queensland generation and the Queensland to New South Wales interconnector (QNI) (through inclusion on the left hand side).

The dynamic ratings for both the 855 and 871 lines reduced from around 844 MVA the previous day to 760 MVA on the day⁸. This saw the Calvale to Wurdong constraint bind from 8 am, which combined with generator rebidding led to a significant decrease in the ability for flows into Queensland across QNI. The limit changed from 200 MW into Queensland at 7.50 am to 640 MW forced flows out of Queensland from 8 am, with forced flows out of Queensland reaching as much as 1038 MW at 9.05 am.

On the day Stanwell made numerous large volume rebids, close to dispatch.

At 7.21 am, effective from 7.30 am, Stanwell rebid 1623 MW of capacity at Tarong and Tarong North power stations from prices above \$20/MWh to below -\$950/MWh and shifted 290 MW of capacity at Stanwell units 1 and 3 from prices below \$340/MWh (the majority of which was less than \$60/MWh) to above \$2400/MWh. A rebid at 11.25 am shifted a further 210 MW at Tarong and Tarong North to prices close to the floor. The reason given for both rebids was “transmission constraint 855-871 predispatch”.

⁸ AEMO August pricing event report – www.aemo.com.au

At 8.01 am, effective from 8.10 am, Stanwell rebid the remaining 200 MW of the capacity at Tarong and Tarong North from prices above \$50/MWh to below -\$950/MWh. Again the reason given was “transmission constraint 855-871”. As part of this rebid, Stanwell rebid 83 MW of capacity at Kareeya from prices around \$1/MWh to the price cap.

At 8.17 am, effective from 8.25 am, Stanwell rebid an additional 80 MW at Stanwell units 1 and 3 from prices less than \$25/MWh to above \$2400/MWh. The reason given was “0816A Transmission constraint 855_871”.

At 8.11 am, effective from 8.20 am, Callide Power Trading rebid 198 MW of capacity at Callide C from prices above \$34/MWh to below -\$940/MWh. The reason given was “0810F manage 871-855 constraint – SL”.

At 8.58 am, effective from the 9.05 am, Origin Energy rebid 265 MW of capacity at Darling Downs power station from prices above \$280/MWh to below -\$940/MWh. At the same time 140 MW of capacity priced above \$450/MWh at its Mount Stuart power station unit 2 was shifted into lower price bands, with 45 MW priced below -\$980/MWh. The remaining 95 MW was shifted to close to the price floor in subsequent rebids. The reason given was “A constraint management – Q>> NIL_ 855_871 SL”.

At 9.08 am, effective from 9.15 am, CS Energy rebid 240 MW of capacity at Gladstone from prices below \$290/MWh to the price cap. The reason given was “0908A intraconnector constraint – units constrained”.

At 10.11 am, Millmerran Energy Trader rebid 600 MW of capacity priced above \$25/MW at its Millmerran power station into price bands below -\$950/MWh. The reason given was “10:11 F manage 855-871 constraint – sl”.

At 8.45 am, 9 am, 9.15 am and 9.20 the 5-minute price exceeded \$350/MWh. These high priced intervals were set by Stanwell. At these times flows were forced counter price out of Queensland with around \$131 000 of negative settlement residues accrued across QNI.

For a number of dispatch intervals from 9.25 am to 9.50 am and 10.50 am to 2.40 pm, the 5 minute price was below -\$300/MWh.

Thursday, 30 August

1:30 PM	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	463.14	50.00	50.07
Demand (MW)	5756	5750	5922
Available capacity (MW)	9419	9421	9496

Events on the day were similar to 26 August (discussed above). At 1.05 pm, there was a reduction in the ratings of the Calvale to Wurdong 855 line by 45 MVA. The Q>>NIL_871_855 constraint could not be satisfied and violated for one dispatch interval at 1.05 pm, the 5-minute price spiked to \$7250/MWh.

Following this high price participants in Queensland rebid around 2000 MW of capacity to prices at close to the price floor with the majority of this (1400 MW) rebid by CS Energy. This saw the 5-minute price reach the price floor between 1.15 pm and 1.30 pm, inclusive.

Around \$163 500 of negative settlement residues were accumulated for the 1.30 pm trading interval as a result of counter price flows across QNI.

Friday, 31 August

10 AM	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	310.72	52.06	53.05
Demand (MW)	5988	6087	5914
Available capacity (MW)	9492	9574	9444
12:30 PM	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	280.70	50.13	48.69
Demand (MW)	5934	5914	5882
Available capacity (MW)	9524	9636	9546

On the day, congestion in central Queensland and rebidding saw flows forced south into New South Wales across QNI by up to 1039 MW at 9.55 am. Flows across the interconnector remained at above 800 MW into New South Wales for the majority of the afternoon, counter-price for the 10 am, midday and 12.30 pm trading intervals.

At 9.52 am, effective from 10 am, CS Energy rebid 240 MW of capacity at Gladstone from prices below \$290/MWh (of which 160 MW was priced below \$60/MWh) to the price cap. The reason given was “0948P economic dispatch – pd target high–sl”. At 12.21 pm, effective from 12.30 pm, 380 MW of capacity at Gladstone was rebid from prices below \$290/MWh to the price cap for the same reason.

The congestion in central Queensland combined with the rebidding saw the 5-minute price spike, from \$34/MWh at 9.55 am to \$1490/MWh at 10 am, and from \$45/MWh at 12.25 pm to \$1457/MWh at 12.30 pm.

Around \$258 000 of negative settlement residues accrued as a result of counter price flows across QNI, into New South Wales, for the two high priced intervals.

There was no other significant rebidding.

Saturday, 1 September

Midday	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	602.65	70.66	48.17
Demand (MW)	5047	5433	5295
Available capacity (MW)	9216	9500	9530

Events on the day were similar to 26 August (discussed above). At 11.35 am and 11.40 am, there was a reduction in the ratings of the Calvale to Wurdong 855 line, by 50 MVA and 41 MVA respectively. The Q>>NIL_855_871 constraint could not be satisfied and violated for one dispatch interval at 11.40 am, and the 5-minute price spiked to \$6271/MWh.

In response to the high prices around 770 MW of capacity was rebid from higher prices into prices close to the price floor, a majority of which (630 MW) was rebid by Stanwell at Tarong. The 5-minute price fell to close to the price floor by 11.55 am and stayed there until 12.05 pm.

Around \$269 000 of negative settlement residues accrued for the midday trading interval as a result of counter price flows across QNI, into New South Wales.

There was no other significant rebidding.

Detailed NEM Price and Demand Trends

for Weekly Market Analysis
26 August - 1 September 2012



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

Financial year	QLD	NSW	VIC	SA	TAS
2012-13 (\$/MWh) YTD	60	63	66	74	54
2011-12 (\$/MWh) YTD	28	31	31	36	32
Change*	111%	102%	114%	108%	71%
2011-12 (\$/MWh)	30	31	28	32	33

Table 2: NEM turnover

Financial year	NEM Turnover** (\$, billion)	Energy (TWh)
2012-13 (YTD)	\$2.229	35
2011-12	\$5.987	199
2010-11	\$7.445	204

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)
Apr-12	30	34	33	30	36	0.457
May-12	26	29	27	30	33	0.434
June-12	35	37	38	31	35	0.619
July-12	65	68	76	83	60	1.228
August-12 (MTD)	55	58	57	65	48	0.971
Q3 2012 (QTD)	60	63	66	74	54	2.229
Q3 2011 (QTD)	28	31	31	36	32	1.108
Change*	111%	102%	114%	108%	71%	101.24%

Table 4: ASX energy futures contract prices at end of 3 September 2012

	QLD		NSW		VIC		SA	
	Base	Peak	Base	Peak	Base	Peak	Base	Peak
Q1 2013								
Price on 27 Aug (\$/MWh)	66	88	65	84	63	84	68	106
Price on 03 Sep (\$/MWh)	67	90	66	85	63	84	67	106
Open interest on 03 Sep	1093	163	1403	415	1221	78	134	0
Traded in the last week (MW)	286	0	83	1	59	0	0	0
Traded since 1 Jan 12 (MW)	2998	272	4244	409	2502	134	171	0
Settled price for Q1 12(\$/MWh)	30	37	26	28	25	29	26	30

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

Comparison:	QLD	NSW	VIC	SA	TAS	NEM
June 12 with June 11						
MW Priced <\$20/MWh	-685	-2047	-480	66	13	-3133
MW Priced \$20 to \$50/MWh	238	1100	269	40	168	1814
July 12 with July 11						
MW Priced <\$20/MWh	-3838	-1796	-1613	-170	-211	-7628
MW Priced \$20 to \$50/MWh	2427	-1157	516	-497	110	1399
August 12 with August 11 (MTD)						
MW Priced <\$20/MWh	-3009	-1064	-1217	-133	-170	-5594
MW Priced \$20 to \$50/MWh	2583	-1047	714	-458	177	1969

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

** Estimated value