

WEEKLY ELECTRICITY MARKET ANALYSIS



AUSTRALIAN ENERGY
REGULATOR

17 – 23 January 2010

Summary

On Monday 18 January, high temperatures and record demand (8902 MW) saw the spot price in Queensland exceed \$5000/MWh on four occasions reaching a maximum of \$9208/MWh at 2.30 pm. As a result the weekly average spot price for Queensland reached \$188/MWh. In accordance with clause 3.13.7 of the Electricity Rules, the AER will issue a separate report into the circumstances that led to the spot price exceeding \$5000/MWh.

The weekly average spot price for New South Wales was \$154/MWh driven by high temperatures and demand leading to high prices on Friday and Saturday.

The weekly average spot price for the remaining regions ranged from \$23/MWh in Victoria to \$27/MWh in Tasmania.

Spot market prices

Figure 1 sets out the volume weighted average prices for the week 17 January to 23 January 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 17 –23 January 2010	188	154	23	26	27
% change from previous week*	542	199	-92	-94	-17
09/10 financial YTD	45	65	36	95	28
% change from 08/09 financial YTD**	17	40	-5	56	-39

*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 B¹.

Financial markets

Figures 2 to 9 show futures contract² prices traded on the Sydney Futures Exchange (SFE) as at close of trade on Monday 25 January 2010. Figure 2 shows the base futures contract prices

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 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.

for the next three calendar years, and the three year average. Also shown are percentage changes³ compared to the previous week.

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

	QLD		NSW		VIC		SA	
Calendar Year 2010	38	2%	41	1%	41	-8%	58	0%
Calendar Year 2011	39	1%	43*	0%	43	-4%	53	0%
Calendar Year 2012	46	0%	50	0%	53	0%	69	0%
Three year average	41	1%	45	0%	46	-4%	60	0%

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 2010 and the 2010 calendar year and the percentage change⁴ from the previous week.

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

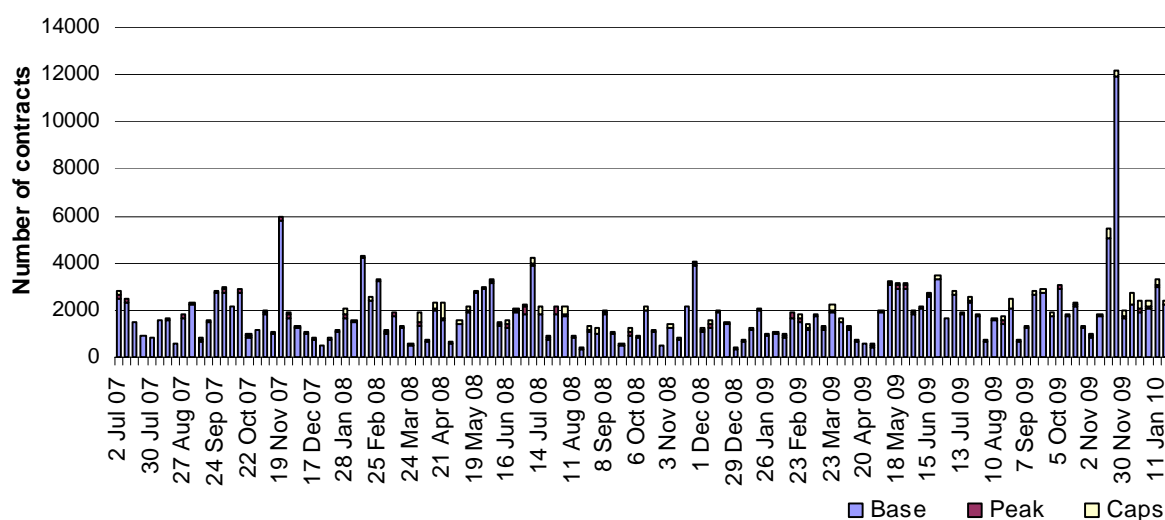
	QLD		NSW		VIC		SA	
Q1 2010 (% Change)	21	17%	18*	9%	30*	-23%	61	0%
2010 (% Change)	9	9%	11	3%	11	-19%	19	0%

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



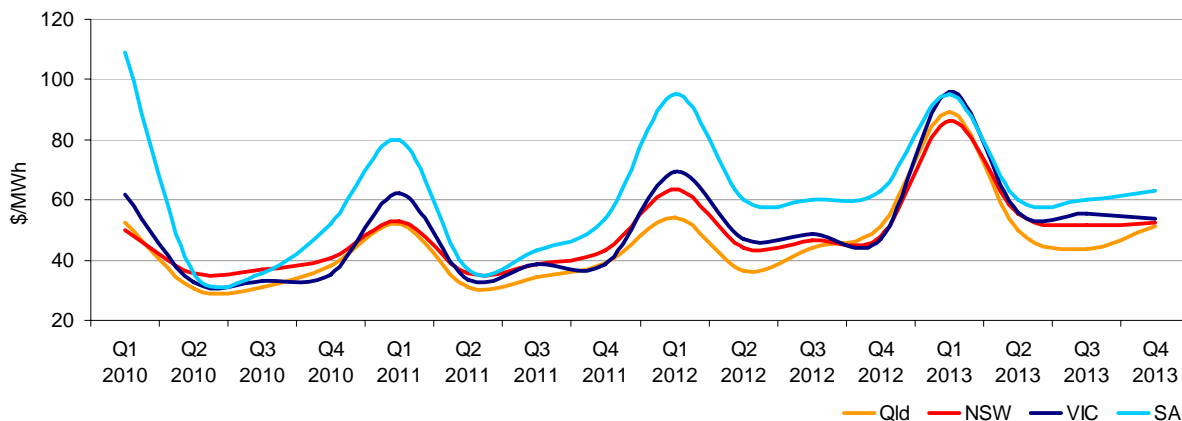
Source: d-cyphaTrade www.d-cyphatrade.com.au

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

³ Calculated on prices prior to rounding.

⁴ Calculated on prices prior to rounding.

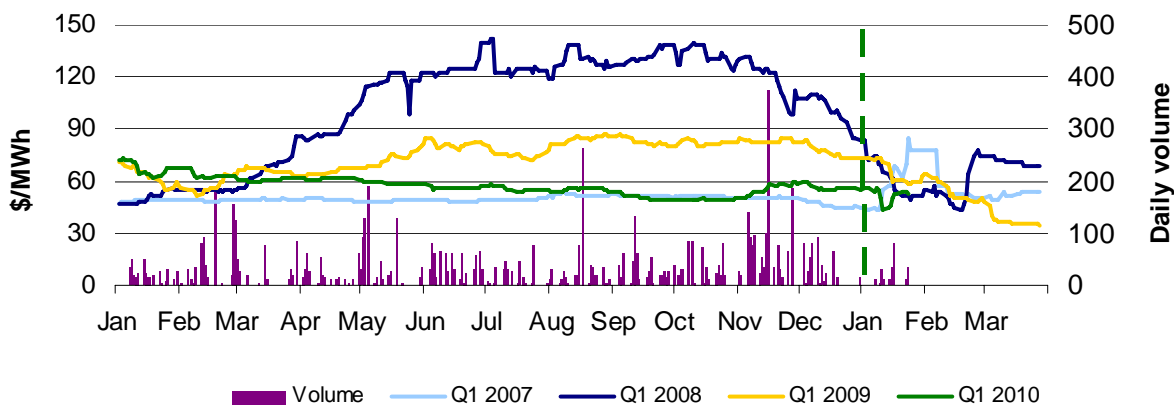
Figure 5: Quarterly base future prices Q1 2010 – Q4 2013



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

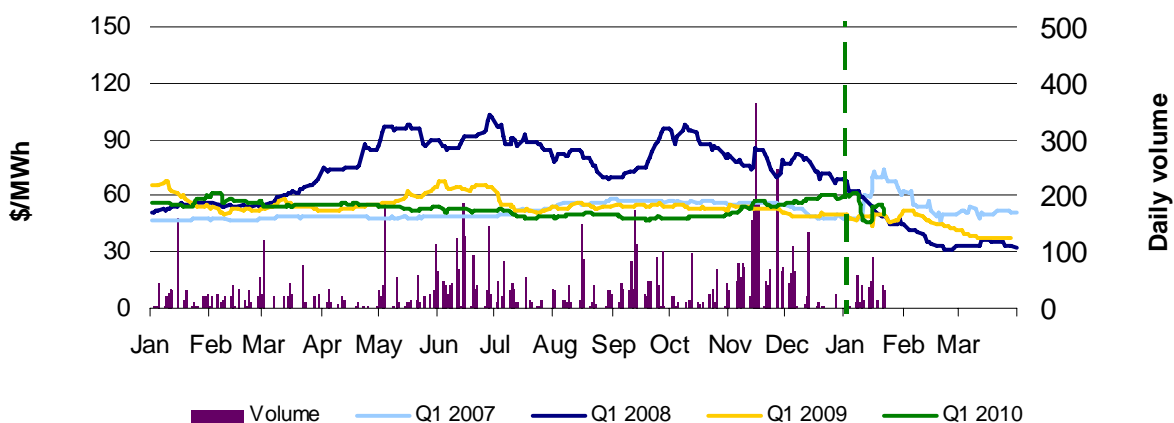
Figures 6-9 compare for each region the closing daily base contract prices for the first quarter of 2007, 2008, 2009 and 2010. Also shown is the daily volume of Q1 2010 base contracts traded. The vertical dashed line signifies the start of the Q1 period for which the contracts are being purchased. To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



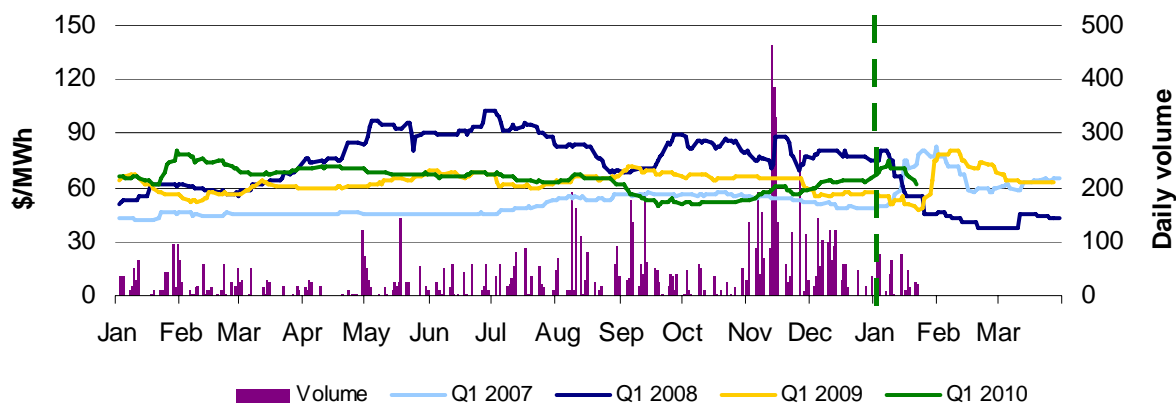
Source: d-cyphaTrade www.d-cyphatrade.com.au

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



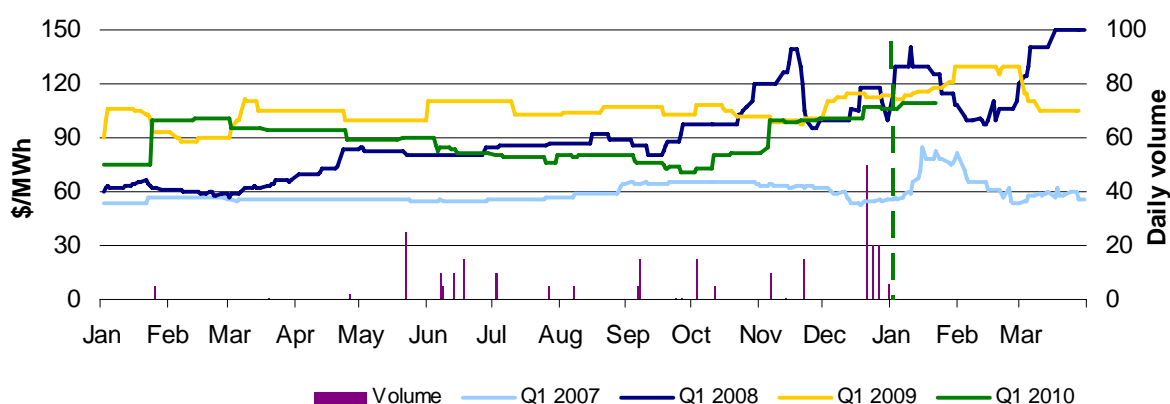
Source: d-cyphaTrade www.d-cyphatrade.com.au

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



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

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



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 126 trading intervals throughout the week where actual prices varied significantly from forecasts⁵. This compares to the weekly average in 2008 of 130 counts. Reasons for these variances are summarised in Figure 10⁶.

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	3	19	6	2
% of total below forecast	42	22	1	5

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 60 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	-60	-20	-308	317
NSW	-414	647	147	-221
VIC	-36	210	47	-573
SA	-245	3	-163	-70
TAS	-69	192	72	-2
TOTAL	-824	1,032	-205	-549

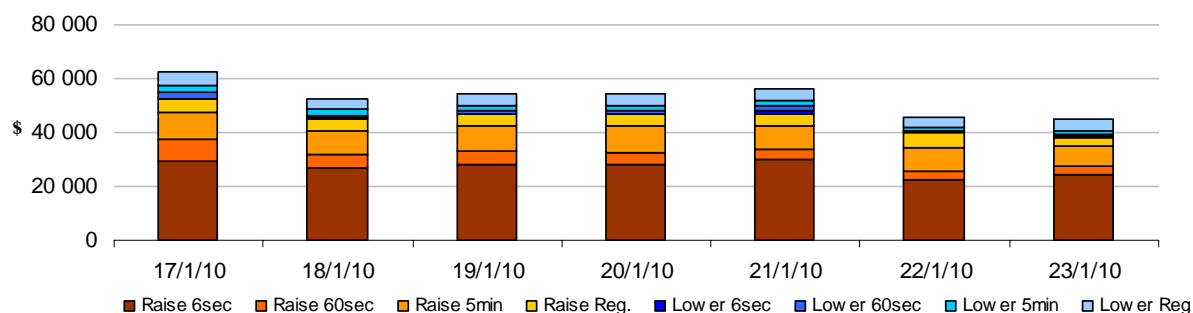
Ancillary services market

The total cost of frequency control ancillary services (FCAS) on the mainland for the week was \$174 000 or less than one per cent of energy turnover on the mainland.

The total cost of FCAS in Tasmania for the week was \$192 000 or about four 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 February 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

17 –23 January 2010

Queensland: There were eight occasions where the spot price in Queensland was greater than three times the Queensland weekly average price of \$188/MWh and above \$250/MWh.

Monday, 18 January

1:30 pm	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	1574.60	133.57	59.79
Demand (MW)	8861	8531	8538
Available capacity (MW)	10 942	10 991	11 037
2:00 pm	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	4462.95	144.96	58.79
Demand (MW)	8868	8571	8551
Available capacity (MW)	10 899	10 961	11 020
2:30 pm	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	9207.97	135.10	59.79
Demand (MW)	8883	8580	8568
Available capacity (MW)	10 869	10 965	11 020
3:00 pm	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	9124.70	120.78	58.79
Demand (MW)	8902	8650	8558
Available capacity (MW)	10 882	10 939	11 020
3:30 pm	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	6716.67	98.79	57.79
Demand (MW)	8898	8642	8539
Available capacity (MW)	10 956	10 953	11 020
4:00 pm	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	5429.84	249.99	57.79
Demand (MW)	8882	8635	8542
Available capacity (MW)	10 974	10 992	11 000

In accordance with clause 3.13.7 of the Electricity Rules, the AER will issue a separate report into the circumstances that led to the spot price exceeding \$5000/MWh.

Thursday, 21 January

3:00 pm	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	1733.32	250.78	130.30
Demand (MW)	8413	8421	8374
Available capacity (MW)	10 754	10 787	10 840
3:30 pm	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	1728.82	250.78	290.80
Demand (MW)	8252	8505	8387
Available capacity (MW)	10 107	10 787	10 840

Conditions at the time saw demand close to or lower than that forecast. Available capacity was up to 680 MW lower than that forecast four hours ahead.

At around 2.50 pm CS Energy's Kogan Creek power station tripped reducing its available capacity by 740 MW, the reason given related to induced draft fan problems. The five minute price increased from \$101/MWh at 2.55 pm to \$9916/MWh at 3 pm and 3.05 pm before returning to previous levels at 3.10 pm.

There was no other significant rebidding.

New South Wales: There were 14 occasions where the spot price in New South Wales was greater than three times the New South Wales weekly average price of \$154/MWh and above \$250/MWh.

Friday, 22 January

11:30 am	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	1243.36	119.97	104.89
Demand (MW)	12 543	12 326	12 339
Available capacity (MW)	14 467	14 665	14 497
12:30 pm	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	2915.29	583.83	118.00
Demand (MW)	12 940	12 666	12 682
Available capacity (MW)	14 784	14 745	14 522
1:00 pm	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	3598.71	832.19	454.33
Demand (MW)	13 153	12 836	12 831
Available capacity (MW)	14 912	14 715	14 522
1:30 pm	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	2477.31	832.19	252.22
Demand (MW)	13 332	13 016	13 018
Available capacity (MW)	15 009	14 715	14 690
2:00 pm	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	1167.19	832.19	832.19
Demand (MW)	13 509	13 125	13 132
Available capacity (MW)	15 060	14 715	14 690
2:30 pm	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	3617.24	591.72	832.01
Demand (MW)	13 627	13 241	13 255
Available capacity (MW)	15 009	14 715	14 690
3:00 pm	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	4514.06	619.01	832.19
Demand (MW)	13 770	13 448	13 312
Available capacity (MW)	14 920	14 710	14 760
3:30 pm	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	538.40	597.81	710.89
Demand (MW)	13 760	13 492	13 355
Available capacity (MW)	15 032	14 707	14 760

Friday, 22 January (cont)

4:00 pm	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	2268.39	506.74	630.20
Demand (MW)	13 765	13 507	13 241
Available capacity (MW)	14 986	14 866	14 760
4:30 pm	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	612.34	509.24	297.00
Demand (MW)	13 564	13 336	13 041
Available capacity (MW)	14 948	14 868	14 760
5:00 pm	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	484.55	500.00	70.65
Demand (MW)	13 391	13 171	12 671
Available capacity (MW)	14 878	14 874	14 760

Conditions at the time saw demand up to 386 MW higher than that forecast four hours ahead and up to 720 MW higher than that forecast 12 hours ahead. Available capacity was close to or above that forecast four hours ahead.

A system normal constraint used to manage the overload of one Mt Piper to Wallerawang line on the loss of the other bound from 11.15 am. As a result imports into New South Wales, across all interconnectors were restricted and around 450 MW of low-priced New South Wales generation was constrained down.

Negative settlements accrued across all interconnectors into New South Wales with AEMO invoking constraints to manage these from 11.35 am.

At 11.52 am effective from midday Eraring Energy rebid 200 MW of available capacity at Eraring power station from prices below \$20/MWh to above \$9600/MWh. The reason given was “1146A demand greater than expected”.

At 2.04 pm (after having being constrained-off⁸ since around 11 am), Delta Electricity rebid a fixed loading level of 550 MW for Mount Piper unit two. A further rebid was made at 3.35 pm to extend the inflexible bid for an hour to 4.30 pm. The reasons given were “1402 Managing turbine vibration ET1hr:: fixed load” and “1534P Managing turbine vibration extended – et1hrs:: fixed load”. At 4.30 pm, the unit was no longer constrained-off.

At 4.21 pm, effective for the 5 pm trading interval, Origin Energy rebid 150 MW of available capacity at Uranquinty power station from prices below zero to above \$9300/MWh. The reason given was “1615EST (P) gas management”.

There was no other significant rebidding.

⁸ Network constraints can cause generators to be dispatched at a price that is lower than its offer price (constrained-on) or generators to not be dispatched even though its offer price is lower than the regional price (constrained-off).

Saturday, 23 January

1:00 pm	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	2562.20	261.24	178.92
Demand (MW)	12 151	12 430	12 436
Available capacity (MW)	13 809	13 996	14 266
1:30 pm	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	900.20	542.17	178.92
Demand (MW)	12 209	12 504	12 527
Available capacity (MW)	13 973	14 216	14 266
2:00 pm	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	693.63	544.46	642.33
Demand (MW)	12 285	12 558	12 633
Available capacity (MW)	13 926	14 216	14 266

Conditions at the time saw demand up to 295 MW lower and available capacity up to 240 MW lower than that forecast four hours ahead.

The same system normal constraint as the previous day constrained off up to around 400 MW of low-priced New South Wales generation and reduced import limits into New South Wales by around 700 MW compared to that forecast. Flow was being forced into Queensland counter-price. AEMO invoked a constraint to manage the counter price flows at 11.55 am.

At 9.41 am Eraring energy reduced the available capacity of Eraring unit one by 160 MW (all of which was priced above \$9600/MWh). The reason given was “0935P Milling limit”. Then at 12.18 pm, 150 MW of available capacity was rebid from prices below zero to above \$9600/MWh. The reason given was “1212A changes in 5 min predis 1200 vs 1215”.

At 12.08 pm Macquarie Generation reduced the available capacity at Liddell unit one and four by a total of 170 MW (all of which was priced below zero). The reason given was “1205 Milling limit”.

There was no other significant rebidding.

Detailed NEM Price and Demand Trends

for Weekly Market Analysis
17 - 23 January 2010



AUSTRALIAN ENERGY
REGULATOR

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

Financial year	QLD	NSW	VIC	SA	TAS
2009-10 (\$/MWh) (YTD)	45	65	36	95	28
2008-09 (\$/MWh) (YTD)	38	46	38	61	45
Change*	17%	40%	-5%	56%	-39%
2008-09 (\$/MWh)	36	43	49	69	62

Table 2: NEM turnover

Financial year	NEM Turnover** (\$, billion)	Energy (TWh)
2009-10 (YTD)	\$6.127	117
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)
Sep-09	25	26	24	28	22	0.406
Oct-09	27	28	26	30	26	0.459
Nov-09	99	138	36	325	34	1.924
Dec-09	34	130	25	26	32	1.172
Jan-10 (MTD)	78	75	108	204	30	1.196
Q4 2009	53	100	29	134	31	3.555
Q4 2008	39	51	34	32	44	2.133
Change*	35%	97%	-13%	312%	-30%	67%

Table 4: ASX energy futures contract prices at 25 January

	QLD		NSW		VIC		SA	
Q1 2010	Base	Peak	Base	Peak	Base	Peak	Base	Peak
Price on 18 Jan (\$/MW)	51	70	48	72	71	130	109	185
Price on 25 Jan (\$/MW)	53	70	50	82	62	130	109	185
Open interest on 25 Jan	2905	200	3532	177	4239	305	149	30
Traded in the last week (MW)	44	0	179	0	121	0	0	0
Traded since 1 Jan 09 (MW)	7610	350	8221	228	9751	611	257	20
Settled price for Q1 09(\$/MW)	35	48	38	48	62	114	102	200

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

Comparison:	QLD	NSW	VIC	SA	TAS	NEM
November 09 with November 08						
MW Priced <\$20/MWh	855	-401	581	338	-101	1271
MW Priced \$20 to \$50/MWh	-354	-172	325	-124	812	487
December 09 with December 08						
MW Priced <\$20/MWh	872	-206	-165	503	-14	991
MW Priced \$20 to \$50/MWh	-423	-115	540	-68	441	375
January 10 with January 09						
MW Priced <\$20/MWh	694	350	408	261	-64	1650
MW Priced \$20 to \$50/MWh	-587	-149	-221	16	756	-184

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

** Estimated value