

Demand in New South Wales reached a new high on Wednesday and again on Thursday of around 13 300 MW as a result of high temperatures. The high demands combined with low reserves saw prices exceeding \$9000/MWh in both New South Wales and Queensland on Thursday, leading to average prices for the week of \$265/MWh and \$175/MWh respectively.

Victoria and South Australia saw average prices of \$28/MWh and \$30/MWh respectively with temperatures well down across both regions from the highs of the previous week. Prices in Tasmania also decreased compared to the previous week to average \$30/MWh.

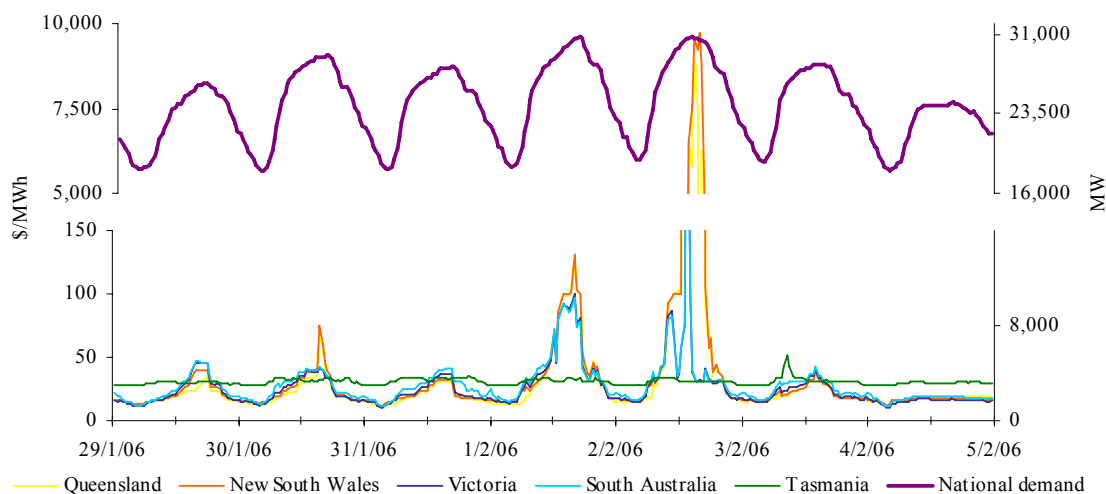
Turnover in the energy market for the mainland was almost \$650 million. The total cost of ancillary services for the week was around \$170 000, or less than 0.1 per cent of turnover. Turnover in Tasmania for the week was \$5.5 million with the cost of ancillary services decreasing to \$34 000 or 0.6 per cent of turnover. This compares to an average weekly cost for frequency control ancillary services in Tasmania of \$280 000 since entering the market in May. A reduction in the offer prices for frequency control services by Hydro Tasmania on 17 January contributed to this reduced cost.

Significant variations between actual prices and those forecast 4 and 12 hours ahead occurred in 51, or around 15 per cent of all trading intervals, down from over 45 per cent the previous week. Demand forecasts produced 4 and 12 hours ahead varied from actual by more than 5 per cent in almost a third of all trading intervals across the market. These variations were most frequent in South Australia occurring in around 80 per cent of all trading intervals. In other regions, these variations occurred in less than a quarter of trading intervals.

## Energy prices

Figure 1 sets out national demand and spot prices in each region for each trading interval. Figure 2 compares the volume weighted average price with the averages for the previous week, the same quarter last year and for the financial year to date. Figure 3 compares the weekly price volatility index with the averages for the previous week and the same quarter last year.

**Figure 1: national demand and spot prices**



**Figure 2: volume weighted average spot price for energy market (\$/MWh)**

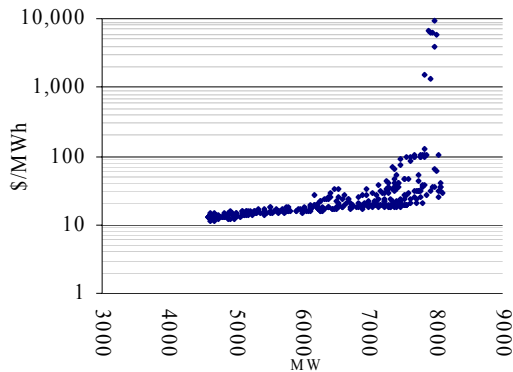
	QLD	NSW	VIC	SA	TAS
Last week	175	265	28	30	31
Previous week	51	45	117	132	37
Same quarter last year	25	35	22	31	-
Financial year to date	37	55	36	49	76
% change from previous week	▲241%	▲492%	▼76%	▼77%	▼16%
% change from same quarter last year	▲604%	▲652%	▲27%	▼3%	-
% change from year to date	▲4%	▼4%	▲14%	▲14%	-

**Figure 3: volatility index during peak periods**

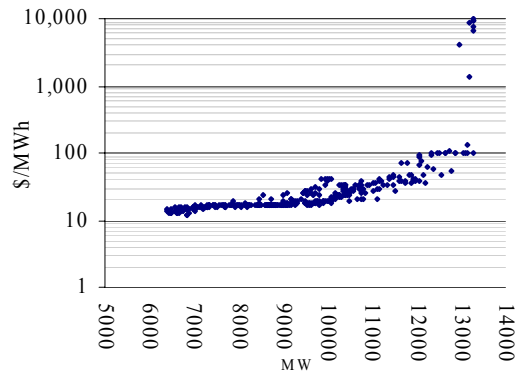
	QLD	NSW	VIC	SA	TAS
Last week	2.88	2.79	0.86	0.76	0.08
Previous week	6.86	2.56	5.15	4.80	0.08
Same quarter last year	0.73	0.74	0.78	0.70	-

Figures 4 to 8 show the weekly correlation between spot price and demand.

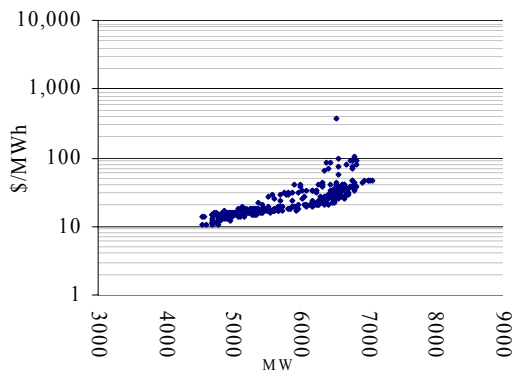
**Figure 4: Queensland**



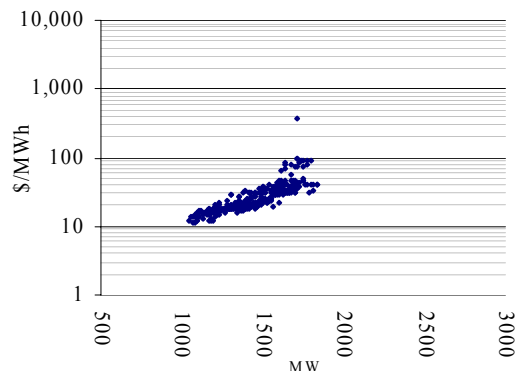
**Figure 5: New South Wales**



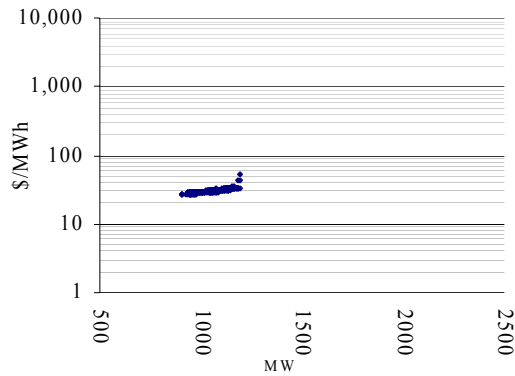
**Figure 6: Victoria**



**Figure 7: South Australia**



**Figure 8: Tasmania**



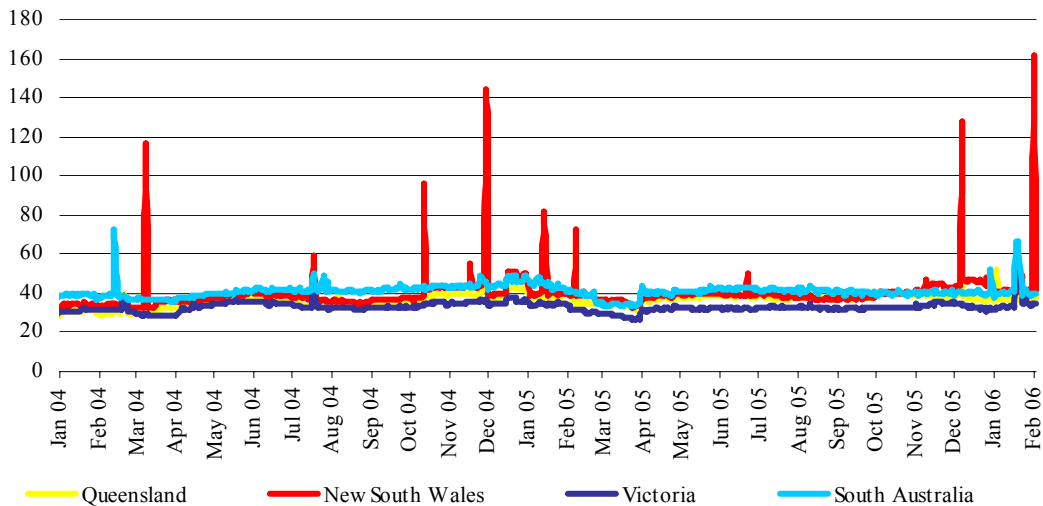
Maximum spot prices reached \$9739/MWh in New South Wales and the highest price ever recorded in Queensland of \$9157/MWh, both on Thursday afternoon. The other mainland maximum spot prices for the week were \$372/MWh in Victoria and \$359/MWh in South Australia, also on Thursday afternoon. In Tasmania, the highest price for the week, of \$52/MWh, was recorded at 12.30pm on Sunday.

Figure 9 sets out the d-cyphaTrade wholesale electricity price index (WEPI) for each region throughout the week excluding Tasmania. Figure 10 sets out the WEPI since 1 January 2004.

**Figure 9: d-cyphaTrade WEPI for the week**

	Monday	Tuesday	Wednesday	Thursday	Friday
Queensland	37.32	37.34	38.00	93.59	37.49
New South Wales	41.96	41.10	42.86	161.59	41.83
Victoria	34.00	34.34	34.70	34.34	34.32
South Australia	38.85	40.32	40.35	39.89	39.54

**Figure 10: d-cyphaTrade WEPI**



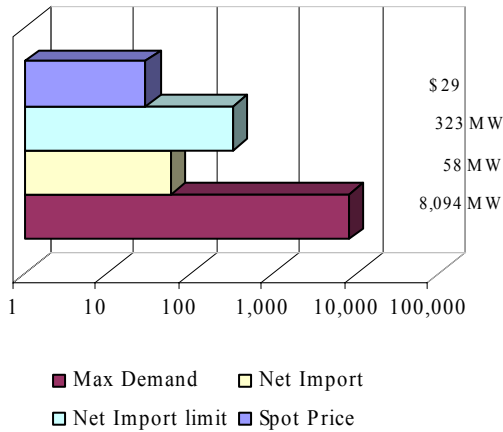
## Reserve

Directions were issued to Directlink on Monday to Friday to manage network issues associated with the Gold Coast and northern New South Wales.

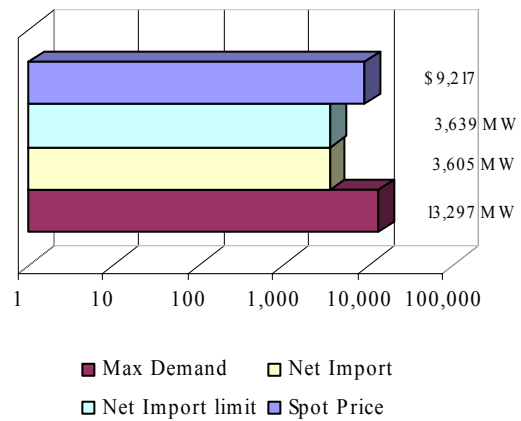
Low reserves occurred in New South Wales on Thursday. To increase transfer capability from Queensland to New South Wales, NEMMCO instructed Transgrid to reconfigure the 132kV network in northern New South Wales between 3.30pm and 4.10pm.

**Figures 11 to 14: spot price, net import and limit at time of weekly maximum demand**

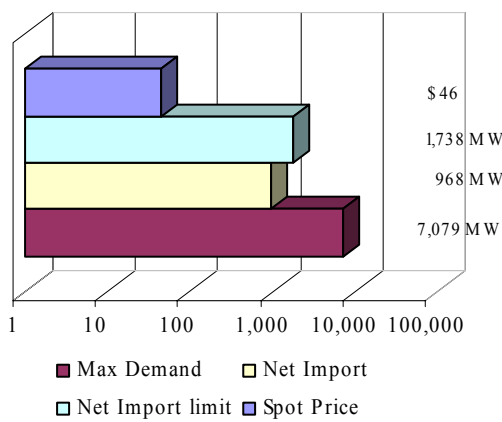
**Figure 11: Queensland**



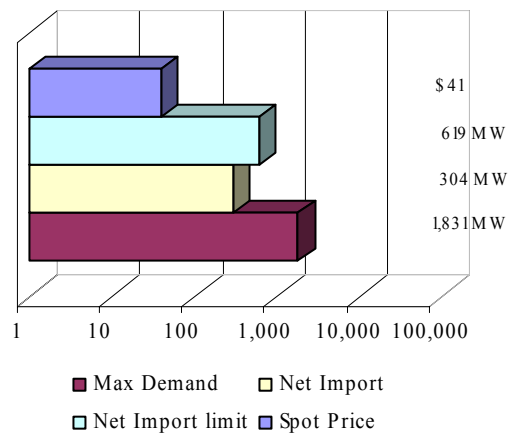
**Figure 12: New South Wales**



**Figure 13: Victoria**



**Figure 14: South Australia**

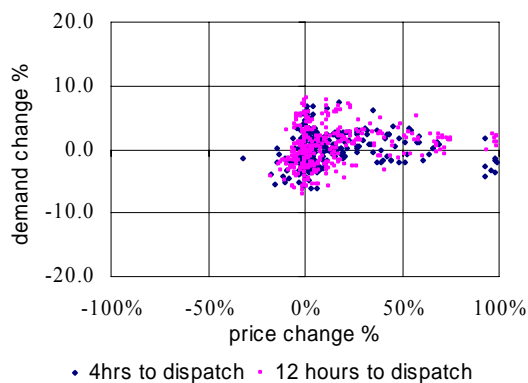


In Tasmania, demand reached a maximum of 1196MW at 8.30am on Friday morning. The spot price at that time was \$52/MWh.

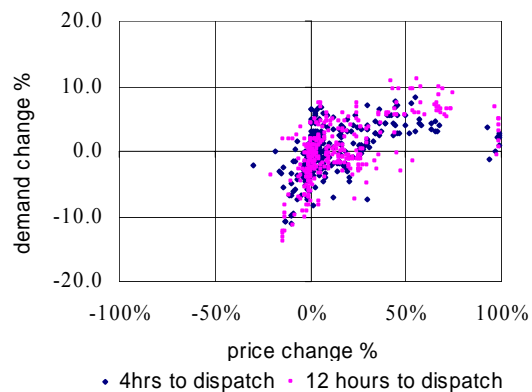
**Price variations**

There were 51 trading intervals where actual prices significantly varied from forecasts made 4 and 12 hours ahead of dispatch, compared to over 150 the previous week. Figures 15 to 19 show the difference in actual and forecast price versus the difference in actual and forecast demand. The figures highlight the correlation between price variation and demand forecast error. The information is presented in terms of the percentage difference from actual. Price differences beyond 100 per cent have been capped.

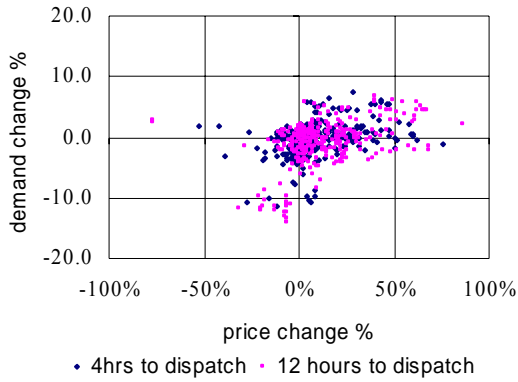
**Figure 15: Queensland**



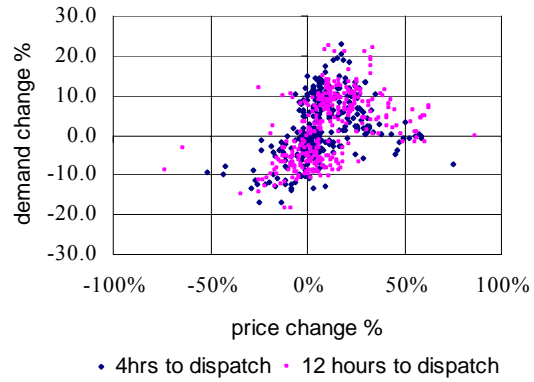
**Figure 16: New South Wales**



**Figure 17: Victoria**



**Figure 18: South Australia**



**Figure 19: Tasmania**

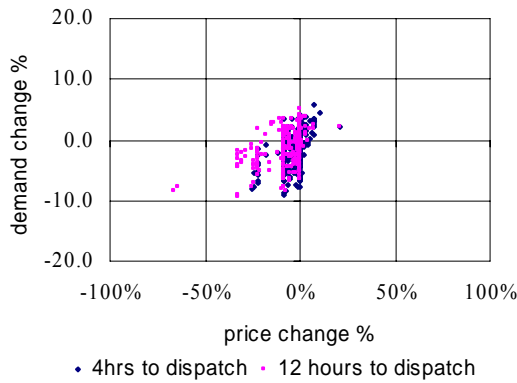
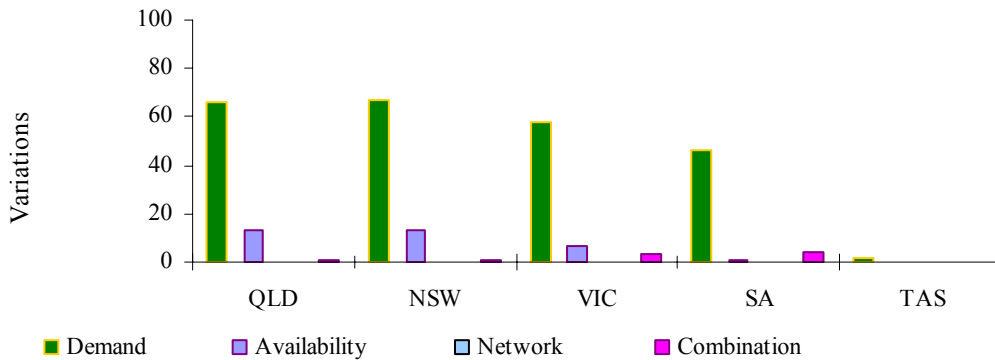


Figure 20 summarises the number and most probable reason for variations between forecast and actual prices.

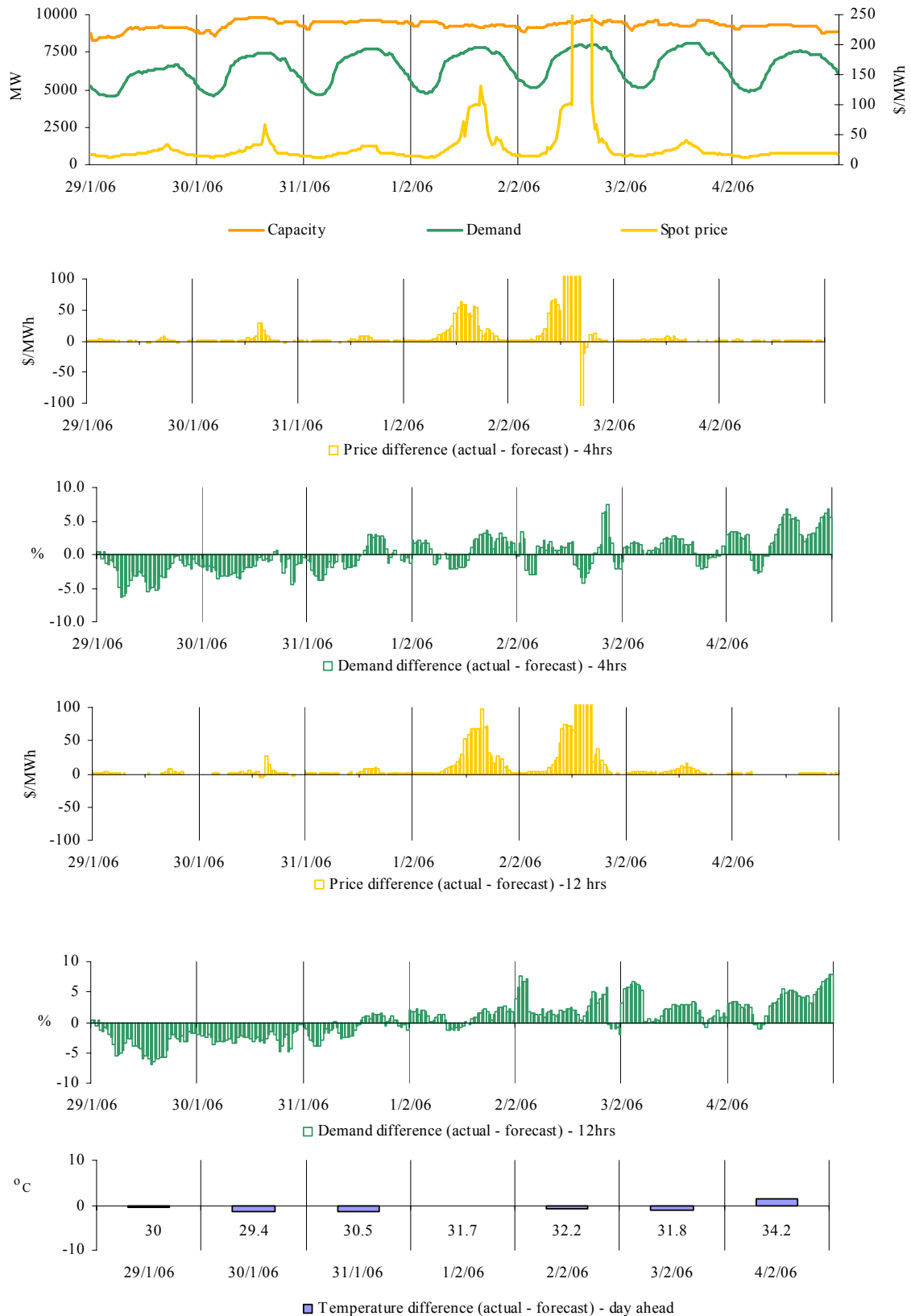
**Figure 20: reasons for variations between forecast and actual prices**



### Price and demand

Figures 21 - 50 set out details of spot prices and demand on a regional basis. They include the actual spot price, actual demand outcomes and variation from forecasts made 4 and 12 hours ahead of dispatch on a daily basis. The differences between the maximum temperature and the temperature forecast at around 6.00 pm the day before are also included. Figures 51 - 55 set out for each region the extent of capacity offered into the market within a series of price thresholds. Actual price and generation dispatched in a region are overlaid.

**Figures 21-26: Queensland actual spot price, demand and forecast differences**



There were 8 occasions in Queensland where the spot price was greater than three times the weekly average price of \$175/MWh. These occurred on Thursday 2 February. A report into the events of that day, when the spot price exceeded \$5000/MWh, will be published separately in accordance with clause 3.13.7 of the Rules.

### Thursday, 2 February

<b>1:00 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	1339.36	98.00	46.88
Demand (MW)	7928	7780	7736
Available capacity (MW)	9464	9653	9672
<b>1:30 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	6347.92	106.34	57.47
Demand (MW)	7949	8073	7795
Available capacity (MW)	9519	9675	9667
<b>2:00 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	5792.55	111.49	57.91
Demand (MW)	7998	8141	7838
Available capacity (MW)	9560	9675	9667
<b>2:30 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	9157.27	107.81	79.51
Demand (MW)	7967	8136	7870
Available capacity (MW)	9577	9675	9667
<b>3:00 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	6598.26	117.94	98.00
Demand (MW)	7877	8151	7851
Available capacity (MW)	9589	9667	9667
<b>3:30 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	1571.73	108.11	98.00
Demand (MW)	7823	8156	7842
Available capacity (MW)	9665	9632	9667
<b>4:00 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	6227.05	280.08	98.31
Demand (MW)	7916	8184	7836
Available capacity (MW)	9654	9633	9667
<b>4:30 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	3882.97	281.17	98.00
Demand (MW)	7995	8211	7851
Available capacity (MW)	9671	9635	9667

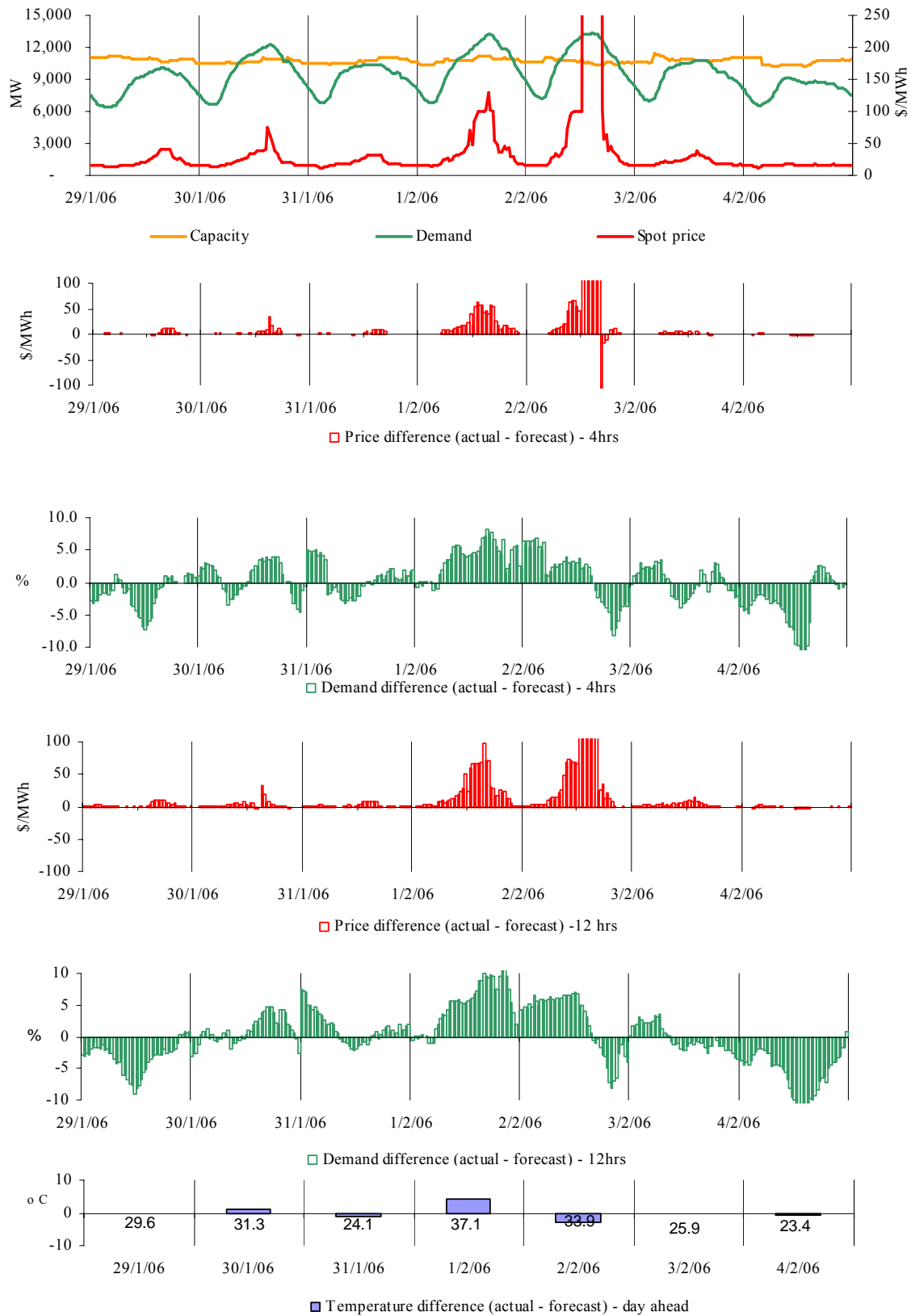
Conditions at the time saw demand around 200 MW lower than forecast four hours ahead with prices higher than forecast and reflecting conditions in New South Wales. Demand in New South Wales was at record levels and higher than forecast.

Unit 4 at Tarong power station was scheduled to return from 6am following an unplanned 24 hour outage. Modifications to its availability during its return saw, at times, as much as 216 MW less capacity than forecast, all priced at below \$15/MWh. The unit returned to full availability late in the evening.

From 7am, network limitations between central and south Queensland restricted the availability of almost 400 MW of capacity in central Queensland. Between 9am and midday, almost 3000 MW of capacity was shifted to prices of less than zero in central Queensland across the CS Energy, Callide Power, Stanwell and Enertrade portfolios.

There was no other significant rebidding.

**Figures 27-32 New South Wales actual spot price, demand and forecast differences**





There were 8 occasions in New South Wales where the spot price was greater than three times the weekly average price of \$265/MWh. These occurred on Thursday 2 February. A report into the events of that day, when the spot price exceeded \$5000/MWh, will be published separately in accordance with clause 3.13.7 of the Rules.

### Thursday, 2 February

<b>1:00 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	1327.84	96.95	45.47
Demand (MW)	13196	12702	12308
Available capacity (MW)	10675	11195	11245
<b>1:30 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	6460.13	104.48	55.00
Demand (MW)	13273	12991	12627
Available capacity (MW)	10557	11195	11245
<b>2:00 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	7578.53	108.67	55.00
Demand (MW)	13278	12971	12624
Available capacity (MW)	10577	11160	11195
<b>2:30 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	9534.56	104.32	75.00
Demand (MW)	13275	12909	12741
Available capacity (MW)	10530	11410	11495
<b>3:00 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	9216.94	113.33	95.87
Demand (MW)	13297	12991	12890
Available capacity (MW)	10487	11410	11495
<b>3:30 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	9738.95	103.95	98.04
Demand (MW)	13268	13128	13052
Available capacity (MW)	10378	11410	11495
<b>4:00 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	8786.37	267.39	100.57
Demand (MW)	13169	13185	13106
Available capacity (MW)	10412	11120	11495
<b>4:30 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	3955.68	266.33	98.02
Demand (MW)	12943	13093	13026
Available capacity (MW)	10422	11090	11495

Conditions at the time saw demand reach a new record of 12 297 MW<sup>1</sup> at 3pm. Demand was as much as 900 MW higher than that forecast 12 hours ahead. The temperature was 3 degrees lower than forecast the previous day, peaking at 33 degrees. Temperatures the previous day had reached 37 degrees.

<sup>1</sup> This demand is taken from the market systems and is referred to as “initial supply”. Initial supply is a measurement of the demand at the start of a dispatch interval and is defined as the:

- sum of the scheduled generation measurements in the region; plus
- net measured interconnector flow into the region.

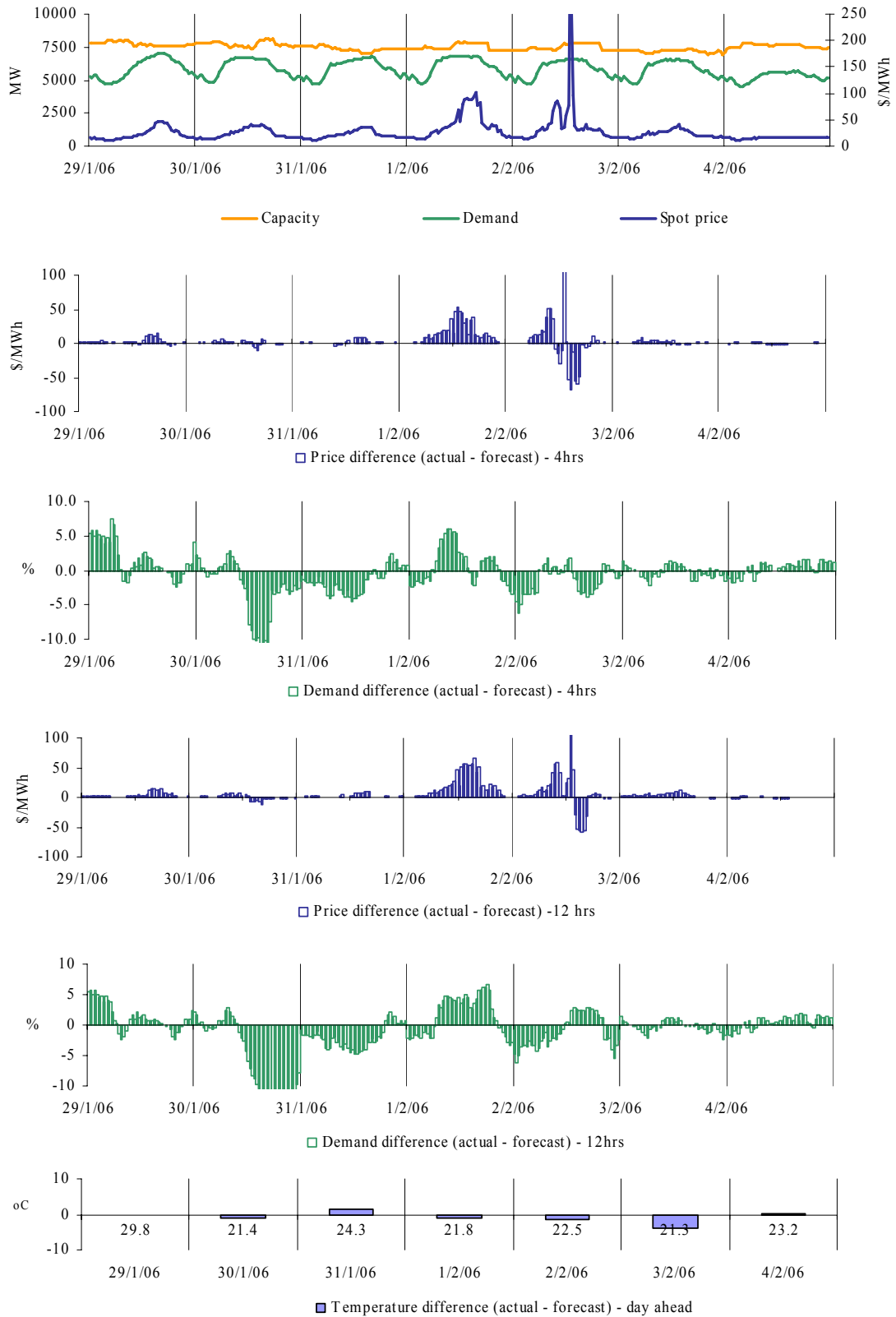
At 9am Macquarie Generation rebid 410 MW of capacity at Bayswater from below \$20/MWh to over \$250/MWh. The rebid reason given was “expect load to vary from forecast”. At 1pm, this 410 MW of capacity, plus a further 320 MW that was priced at \$14/MWh, was shifted into prices of more than \$8000/MWh. The rebid reason given was “sensitivities have changed”. Reductions in availability at Liddell made between 11am and 1pm saw as much as 360 MW of available capacity priced at less than \$50/MWh removed from the market. The rebid reasons given were “milling limits” and “condensate limits”.

Between 1.30pm and 3pm, Eraring Energy reduced the available capacity across Eraring by a total of 340 MW. The rebid reasons given were “lake temperature management”. This capacity had been priced at less than \$100/MWh and remained unavailable until after 6pm.

At 12.40pm NEMMCO declared a lack of reserve condition of LOR1 (or less than twice the largest generator) in New South Wales between 12.30pm and 5pm. To increase transfer capability from Queensland to New South Wales, NEMMCO instructed Transgrid to reconfigure the 132kV network in northern New South Wales between 3.30pm and 4.10pm.

There was no other significant rebidding.

**Figures 33-38: Victoria actual spot price, demand and forecast differences**



There were 9 occasions in Victoria where the spot price was greater than three times the weekly average price of \$28/MWh. These occurred on Wednesday and Thursday.

### Wednesday, 1 February

<b>1:30 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	87.66	34.70	31.68
Demand (MW)	6835	6811	6496
Available capacity (MW)	7867	7888	7649
<b>2:00 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	91.07	44.37	34.46
Demand (MW)	6839	6864	6527
Available capacity (MW)	7823	7883	7649
<b>2:30 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	89.26	44.63	34.68
Demand (MW)	6763	6894	6566
Available capacity (MW)	7784	7869	7635
<b>3:00 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	87.73	57.65	34.89
Demand (MW)	6737	6886	6565
Available capacity (MW)	7784	7820	7586
<b>3:30 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	90.49	53.43	34.90
Demand (MW)	6785	6851	6545
Available capacity (MW)	7754	7820	7571
<b>4:00 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	100.52	87.00	34.72
Demand (MW)	6792	6798	6493
Available capacity (MW)	7756	7830	7571

Conditions at the time saw demand and capacity both close to forecast, with prices aligned across the mainland.

At 11.39am, Ecogen rebid 150 MW of capacity at Newport from prices of \$150/MWh to \$90/MWh and \$50/MWh. The rebid reason given was “band adjustment due to short notice contractual changes”.

At 11.42am, Alinta shifted 40 MW of capacity at Bairnsdale from prices above \$9000/MWh to \$35/MWh. At 12.43pm a further 40 MW was shifted from prices above \$9000/MWh to \$35/MWh. The rebid reason given was “market conditions – price/demand expectation”.

Over a number of rebids, LYMMCO reduced the availability of Loy Yang A by as much as 110 MW during the period. The rebid reasons given included “revised plant limits” and “Plant Requirements”. This capacity was all priced at less than \$20/MWh.

There was no other significant rebidding.

## Thursday, 2 February

<b>10:30 am</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	86.46	34.35	27.39
Demand (MW)	6438	6429	6529
Available capacity (MW)	7392	7355	7513
<b>1:30 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	371.63	90.70	49.06
Demand (MW)	6540	6620	6392
Available capacity (MW)	7759	7817	7513
<b>2:00 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	96.33	94.00	49.32
Demand (MW)	6564	6652	6384
Available capacity (MW)	7788	7810	7513

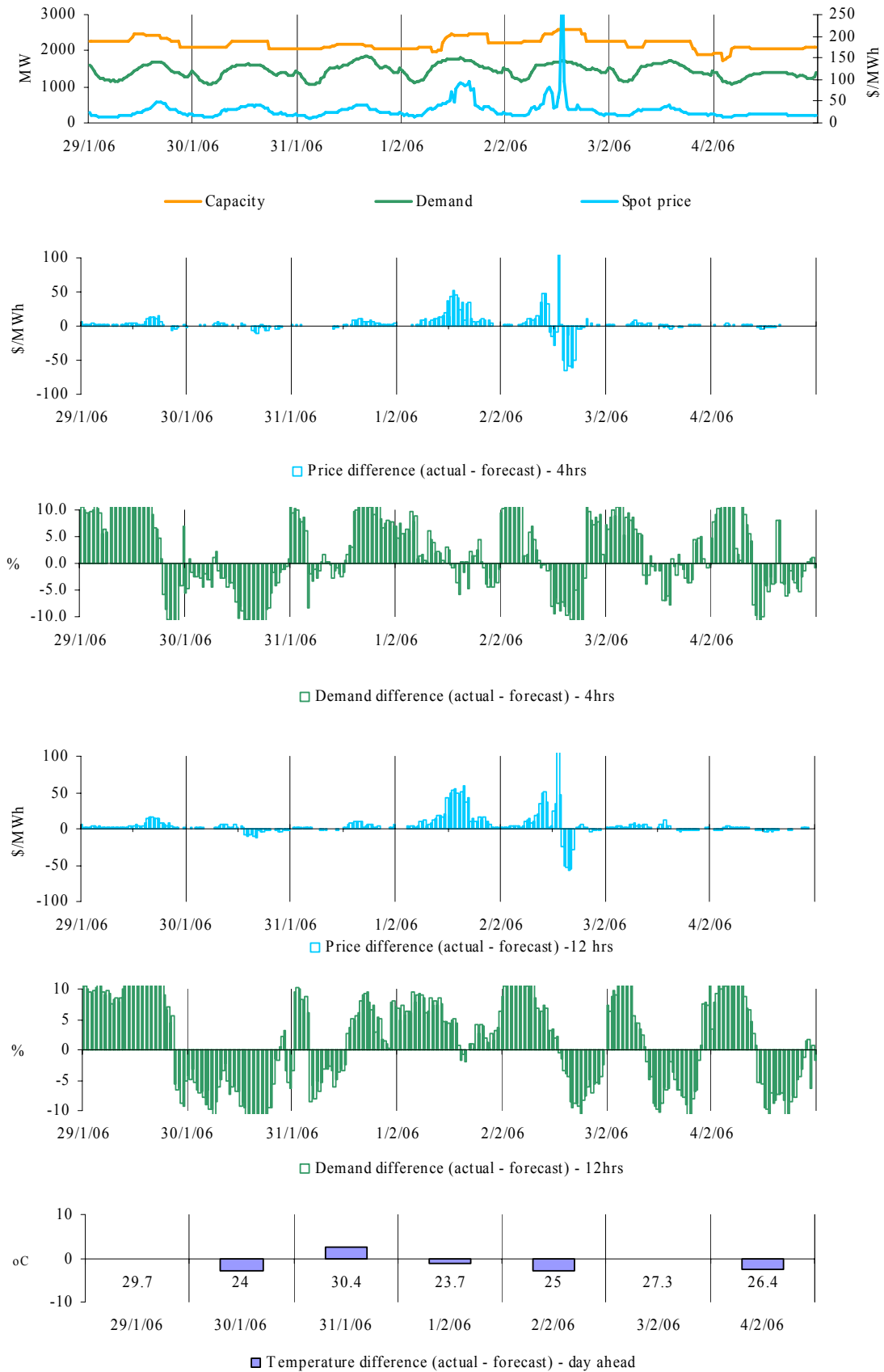
Conditions at the time saw demand and availability close to forecasts, with prices reflecting the extreme conditions in New South Wales and Queensland.

Discretionary constraints applied during this period constrained flow from Victoria to Snowy to as low as 450 MW by 2pm and to zero by 2.30pm. These constraints were applied by NEMMCO to limit counter price flows between Victoria and Snowy. Snowy Hydro's Murray station was offered with 1200 MW of capacity priced at zero. The capacity at Lower Tumut was all priced above \$42/MWh.

From 1pm, AGL shifted approximately 350 MW of capacity from Dartmouth, Eildon, McKay and West Kiewa from prices between \$40/MWh and \$280/MWh to below \$20/MWh. The rebid reason given was "optimise AS and energy:decrease energy band".

There was no other significant rebidding.

**Figures 39-44: South Australia actual spot price, demand and forecast differences**



There were 4 occasions in South Australia where the spot price was greater than three times the weekly average price of \$30/MWh. These occurred on Wednesday and Thursday.

### Wednesday, 1 February

<b>2:00 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	92.22	46.68	38.00
Demand (MW)	1794	1806	1713
Available capacity (MW)	2437	2462	2252
<b>4:00 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	97.38	88.75	38.00
Demand (MW)	1708	1737	1741
Available capacity (MW)	2449	2458	2252

Conditions at the time saw demand and capacity close to forecast, with prices aligned across the mainland.

There was no significant rebidding.

### Thursday, 2 February

<b>1:30 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	358.97	88.67	47.25
Demand (MW)	1709	1838	1717
Available capacity (MW)	2567	2586	2578
<b>2:00 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	95.47	92.83	47.98
Demand (MW)	1714	1866	1741
Available capacity (MW)	2572	2568	2578

Conditions at the time saw demand around 150 MW lower than forecast with prices aligned with Victoria and reflecting the extreme conditions in New South Wales and Queensland.

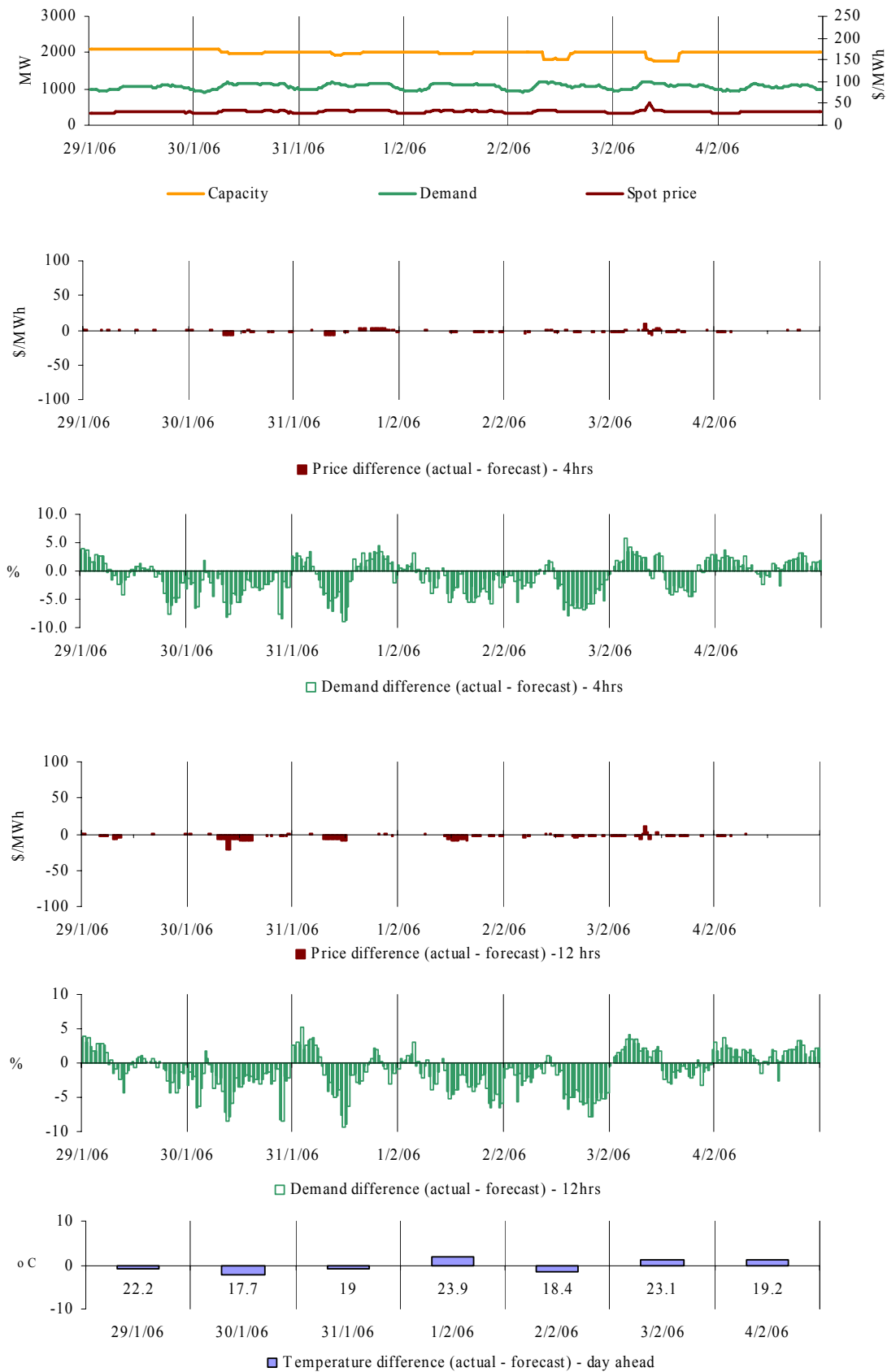
From 1pm the 5-minute dispatch price in Victoria and South Australia increased from \$38/MWh to around \$1200/MWh, before returning to \$20/MWh by 1.25pm.

At 1.20pm, in response, International Power shifted 65 MW of capacity at Pelican Point from around \$100/MWh to \$31/MWh. The rebid reason given was “change in actual price”. This capacity was shifted back up to the original price in the next trading interval.

At the same time, TRU Energy shifted 300 MW of capacity at Torrens Island from above \$30/MWh down to -\$1000/MWh. The rebid reason given was “settle issues”. This capacity was returned to its original price in the next trading interval.

There was no other significant rebidding.

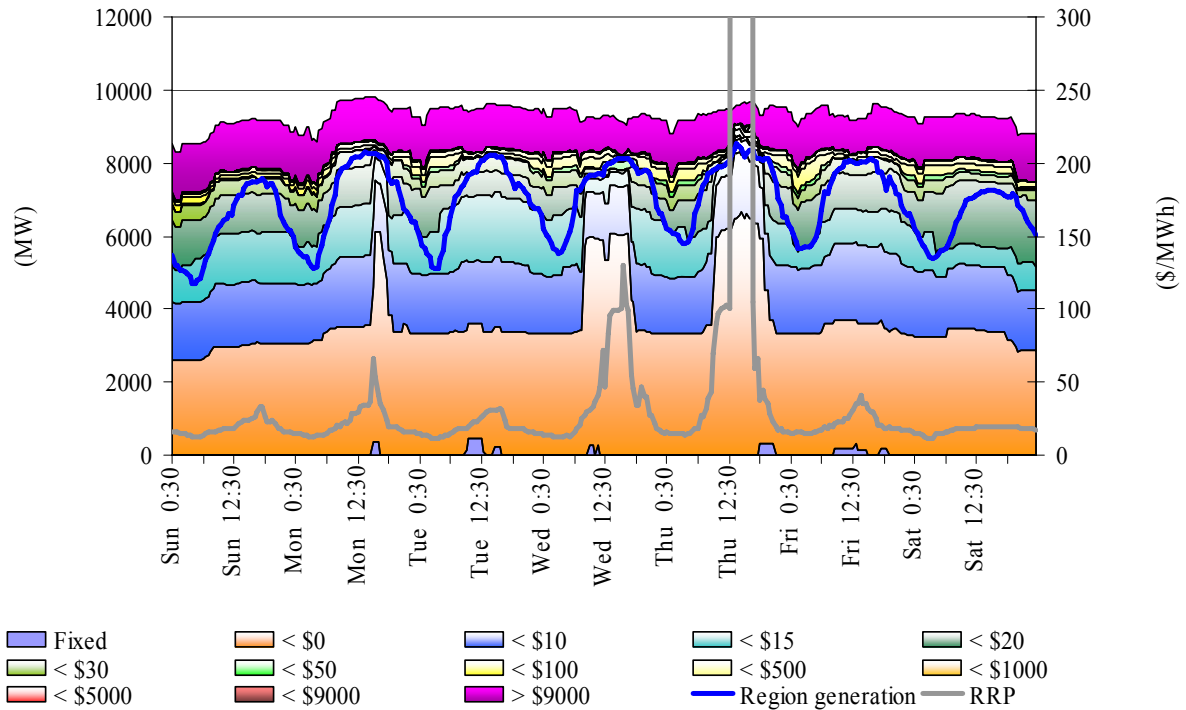
**Figures 45-50: Tasmania actual spot price, demand and forecast differences**



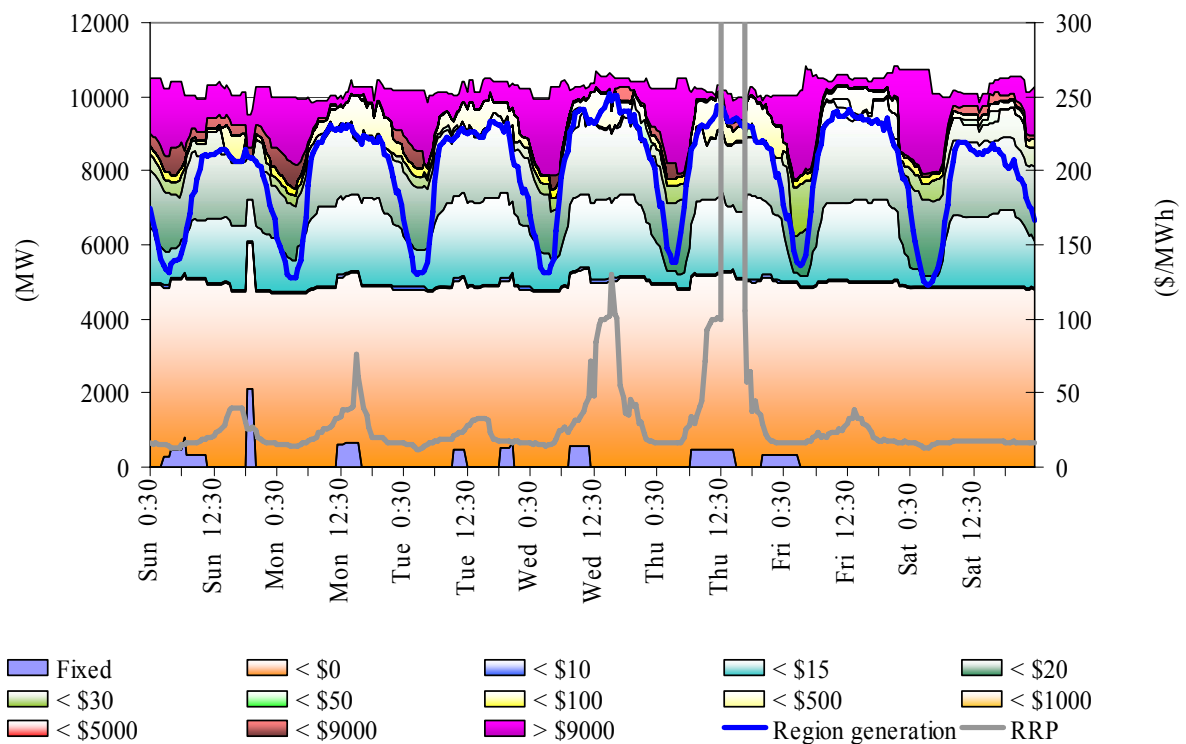
There were no occasions in Tasmania where the spot price was greater than three times the weekly average price of \$31/MWh.



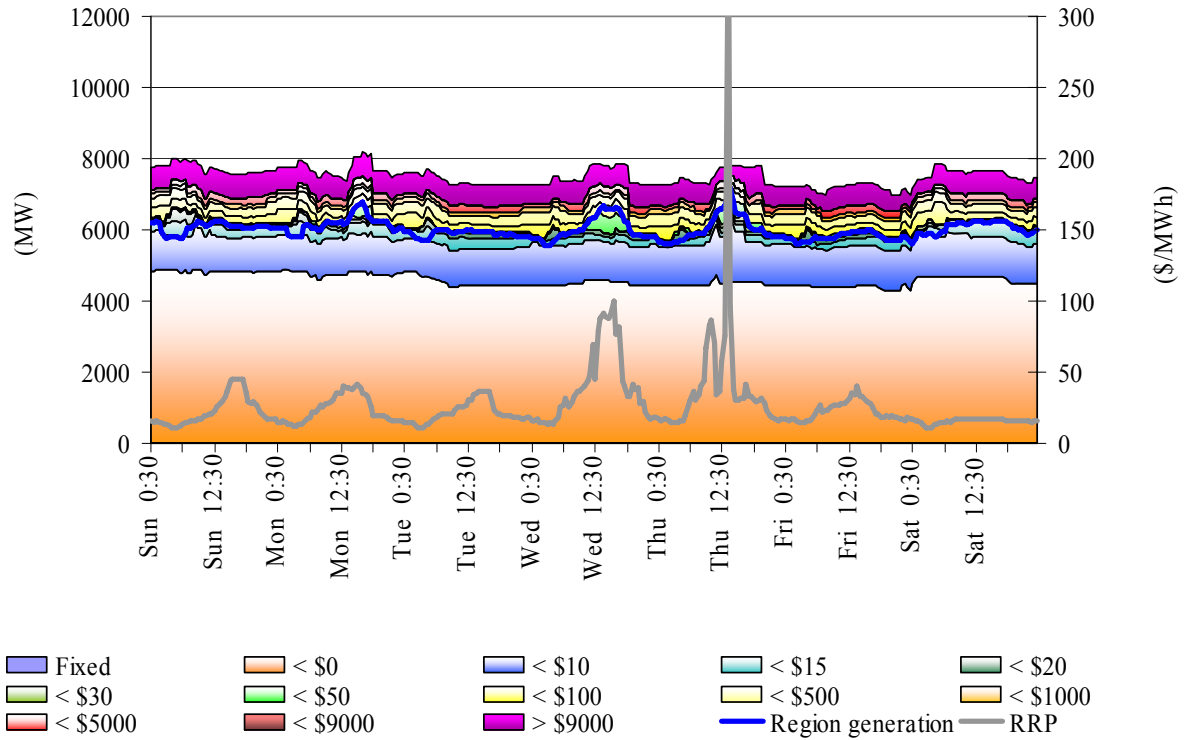
**Figure 51: Queensland closing bid prices, dispatched generation and spot price**



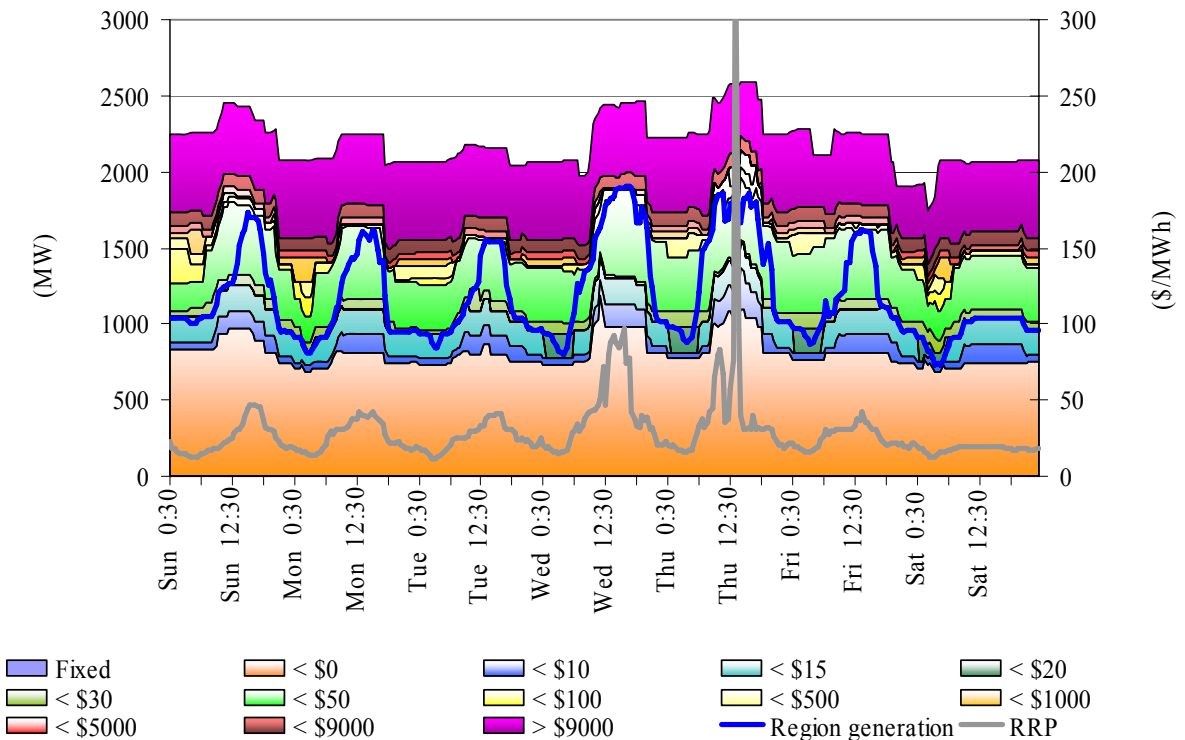
**Figure 52: New South Wales closing bid prices, dispatched generation and spot price**



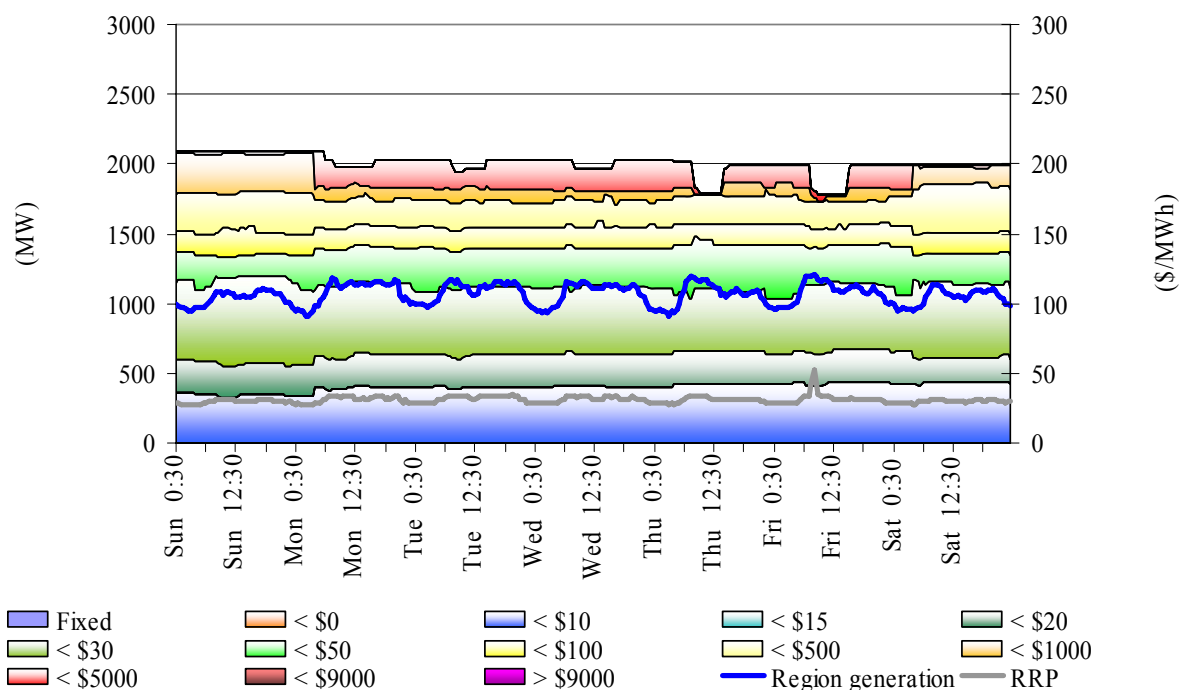
**Figure 53: Victoria closing bid prices, dispatched generation and spot price**



**Figure 54: South Australia closing bid prices, dispatched generation and spot price**



**Figure 55: Tasmania closing bid prices, dispatched generation and spot price**



**Ancillary service market**

The total cost of ancillary services on the mainland for the week was around \$170 000 or less than 0.1 per cent of the total turnover in the energy market. Figure 56 summarises the volume weighted average prices and costs for the eight frequency control ancillary services across the interconnected regions.

**Figure 56: frequency control ancillary service prices and costs**

	Raise 6 sec	Raise 60 sec	Raise 5 min	Raise reg	Lower 6 sec	Lower 60 sec	Lower 5 min	Lower reg
Last week	0.54	0.44	1.07	0.88	0.15	0.19	0.14	1.47
Previous week	0.78	0.54	1.72	1.11	0.17	0.19	0.30	1.25
Last quarter	1.76	0.73	1.15	1.54	0.39	2.28	5.00	1.93
Market Cost (\$1000s)	25	20	70	19	1	1	2	32
% of energy market	0.00%	0.00%	0.01%	0.00%	0.00%	0.00%	0.00%	0.00%

The total cost of ancillary services in Tasmania for the week was \$34 000 or 0.6 per cent of the total turnover in the energy market in Tasmania. This compares to an average weekly cost for frequency control ancillary services of \$280 000 since joining the national market in May. A reduction in the offer prices for frequency control services by Hydro Tasmania on 17 January contributed to this reduced cost. That change saw the offer prices for all services drop from between \$1 and \$2/MW to generally less than thirty cents/MW. Hydro Tasmania has indicated that the offer adjustment is designed to balance its revenue and costs for the pre-Basslink period. Basslink is expected to be operational by the end of February 2006.

Figure 57 summarises for Tasmania the prices and costs for the eight frequency control ancillary services.

**Figure 57: frequency control ancillary service prices and costs for Tasmania**

	Raise 6 sec	Raise 60 sec	Raise 5 min	Raise reg	Lower 6 sec	Lower 60 sec	Lower 5 min	Lower reg
Last week	0.60	0.25	0.25	0.25	0.25	0.25	0.25	0.27
Previous week	38.30	0.25	0.25	1.66	0.26	0.25	0.25	10.06
Last quarter	7.89	1.05	1.05	1.58	4.43	1.06	1.06	1.97
Market Cost (\$1000s)	5	3	3	2	4	8	6	2
% of energy market	0.10%	0.05%	0.05%	0.04%	0.07%	0.15%	0.11%	0.04%

Figure 58 shows the daily breakdown of cost for each frequency control ancillary service.

**Figure 58: daily frequency control ancillary service costs**

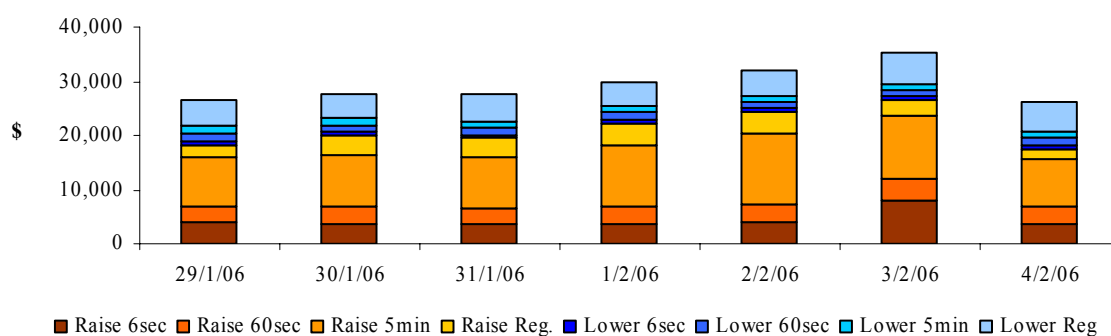
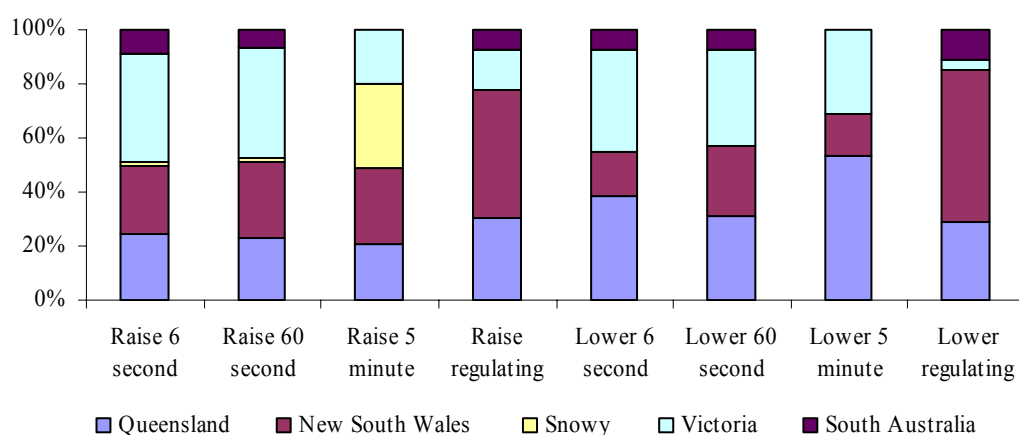


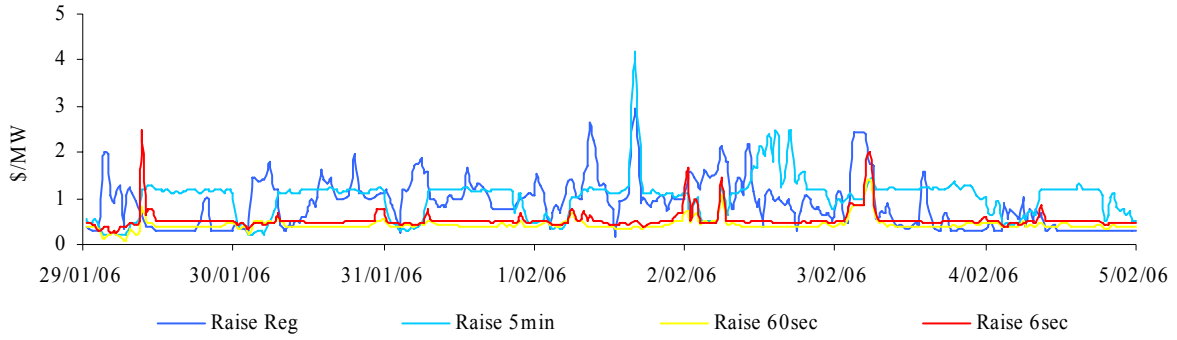
Figure 59 shows the contribution, on a percentage basis, that frequency control ancillary service providers are utilised (in each mainland region) to satisfy the total requirement for each service.

**Figure 59: regional participation in ancillary services on the mainland**

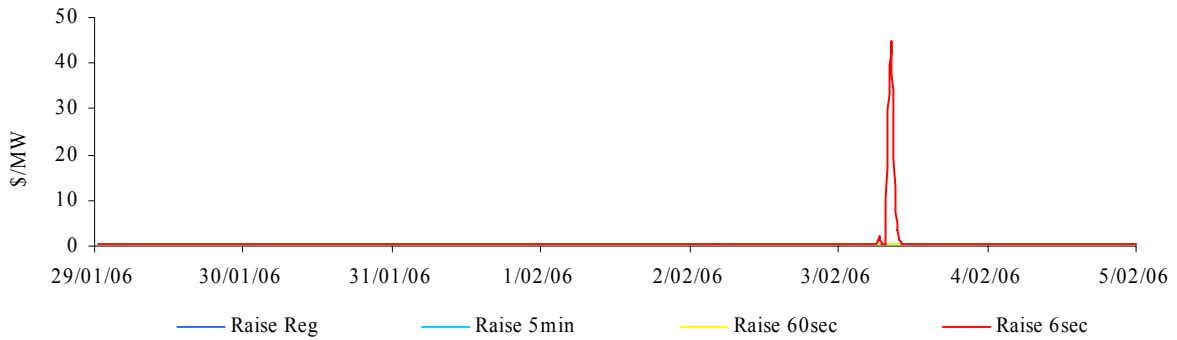


Figures 60 and 61 show 30-minute prices for each frequency control ancillary service throughout the week.

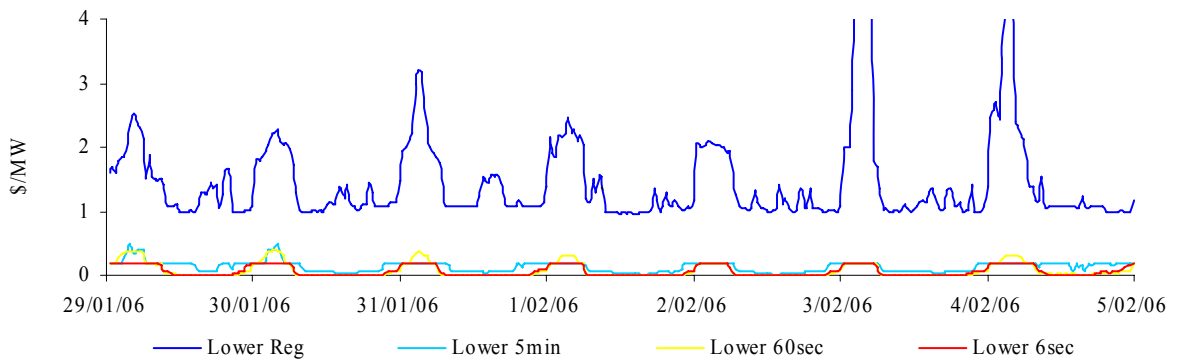
**Figure 60: prices for raise services**



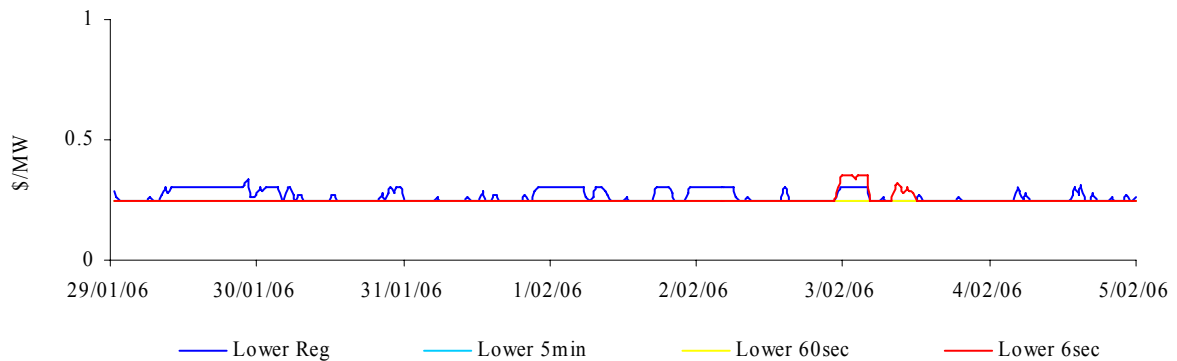
**Figure 60A: prices for raise services - Tasmania**



**Figure 61: prices for lower services**

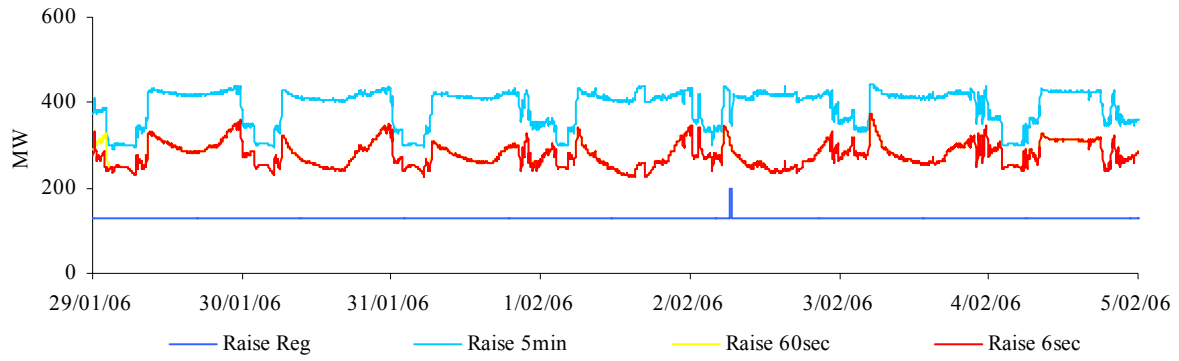


**Figure 61A: prices for lower services - Tasmania**

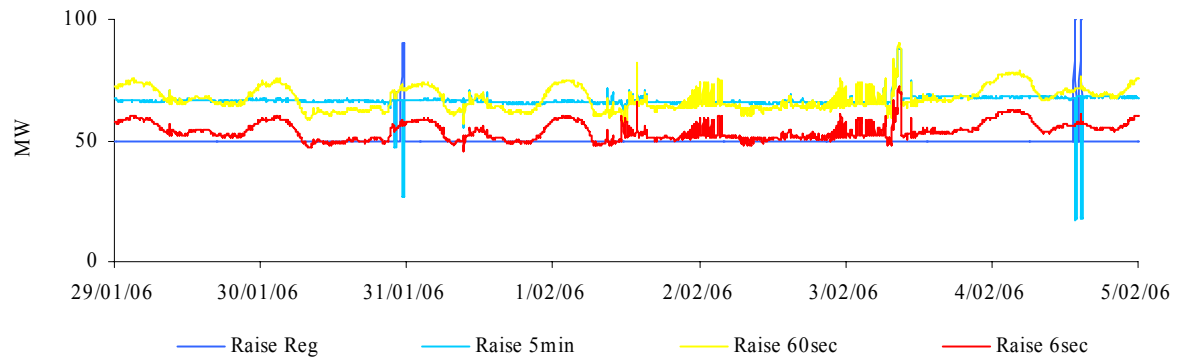


Figures 62 and 63 present for both raise and lower frequency control services the requirement, established by NEMMCO, for each service to satisfy the frequency standard.

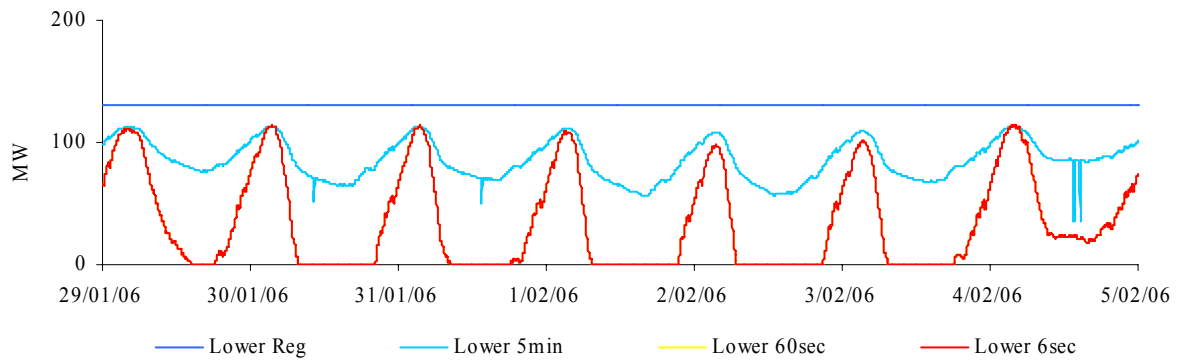
**Figure 62: raise requirements**



**Figure 62A: raise requirements - Tasmania**



**Figure 63: lower requirements**



**Figure 63A: lower requirements - Tasmania**

