

21–27 January 2007

Spot prices for the week averaged between \$40/MWh in South Australia and \$149/MWh in Queensland. Demand in Queensland reached new record levels of more than 8300 MW on Wednesday and Thursday and the spot price exceeded \$5000/MWh on Tuesday and Wednesday. The AER will issue a separate pricing report into the events of those days.

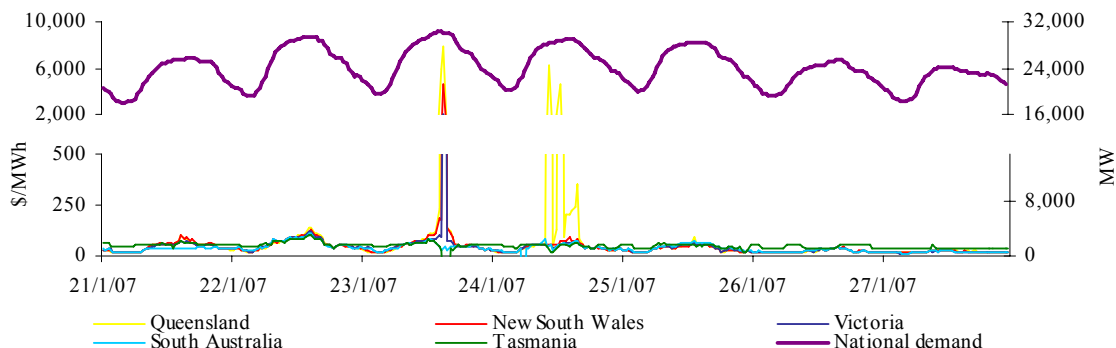
Turnover in the energy market was \$329 million. The total cost of ancillary services for the week was \$180 000, or 0.5 per cent of energy market turnover.

Significant variations between actual prices and those forecast 4 and 12 hours ahead occurred in 106 or a third of all trading intervals. Demand forecasts produced 4 and 12 hours ahead varied from actual by more than 5 per cent in around a quarter all trading intervals across the market. These variations were most frequent in South Australia, occurring in almost half of all trading intervals.

## Energy prices

Figure 1 sets out the national demand and spot price 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 previous financial 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	149	63	50	40	49
Previous week	53	57	321	238	39
Same quarter last year	39	46	53	58	33
Financial year to date	33	38	46	49	40
% change from previous week *	▲182%	▲11%	▼85%	▼83%	▲26%
% change from same quarter last year **	▲284%	▲38%	▼7%	▼31%	▲50%
% change from year to date ***	▲5%	▼20%	▲25%	▼2%	▼48%

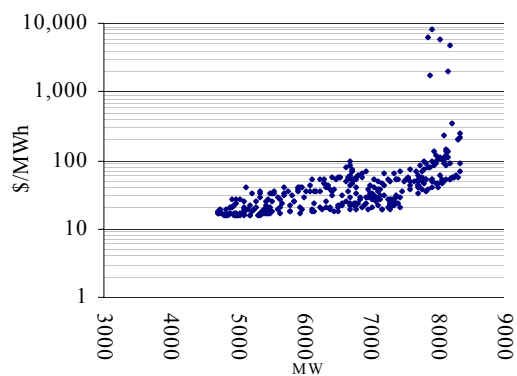
\*The percentage change between last week's average spot price and the average price for the previous week.

\*\*The percentage change between last week's average spot price and the average price for the same quarter last year.

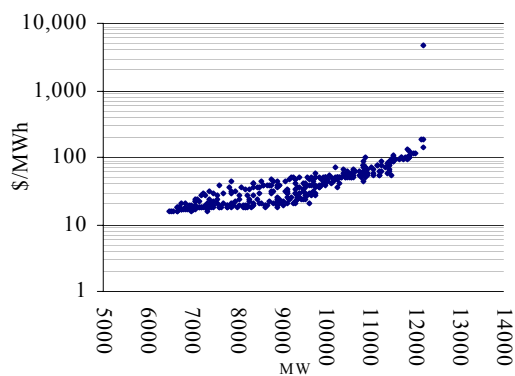
\*\*\*The percentage change between the average spot price for the current financial year to date and the average spot price over the similar period for the previous financial year.

Figures 3 to 7 show the weekly correlation between spot price and demand.

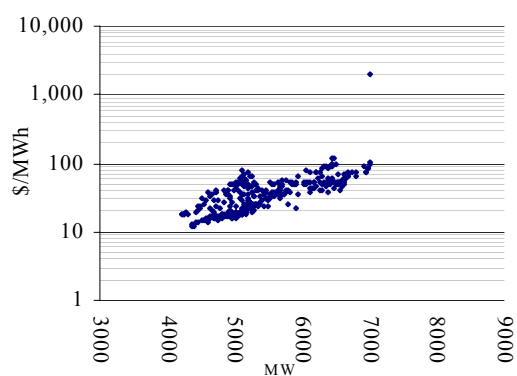
**Figure 3: Queensland**



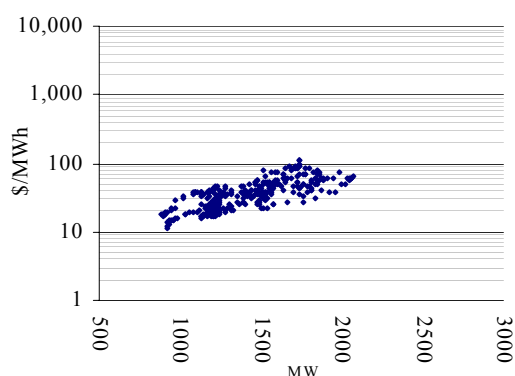
**Figure 4: New South Wales**



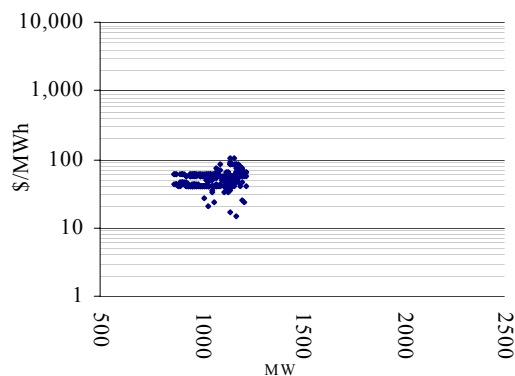
**Figure 5: Victoria**



**Figure 6: South Australia**



**Figure 7: Tasmania**



The maximum spot prices for the week ranged from \$105/MWh in Tasmania to \$7939/MWh in Queensland. Negative spot prices occurred in Tasmania on Tuesday – following a 200 MW reduction in exports across Basslink in one dispatch interval; and in South Australia on Wednesday – following a 250 MW step reduction in export capability.

Figure 8 compares the weekly price volatility index with the averages for the previous week and the same quarter last year.

**Figure 8: volatility index during peak periods**

	QLD	NSW	VIC	SA	TAS
Last week	1.70	1.38	1.14	0.97	0.53
Previous week	1.17	1.28	1.78	1.45	0.89
Same quarter last year	1.07	0.96	0.96	0.94	0.29

The definition of the price volatility index is available on the AER website.  
<http://www.aer.gov.au/content/index.phtml/tag/MarketSnapshotLongTermAnalysis>

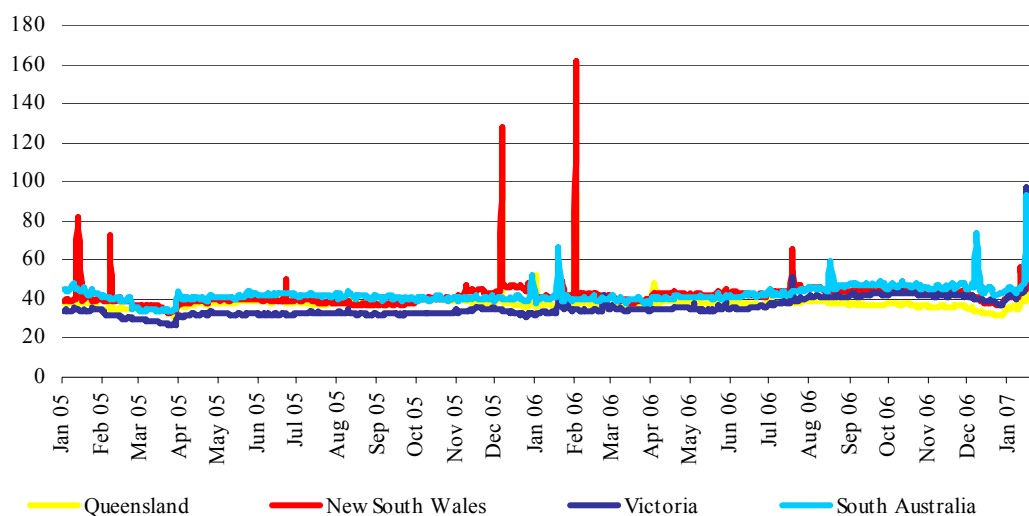
Figure 9 sets out the d-cyphaTrade wholesale electricity price index (WEPI)\* for each region throughout the week excluding Tasmania. Figure 10 sets out the WEPI since 1 January 2005.

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

	Monday	Tuesday	Wednesday	Thursday	Friday
Queensland	44.63	64.85	71.51	48.79	NA
New South Wales	49.73	53.50	50.18	49.20	NA
Victoria	48.52	52.64	52.79	52.67	NA
South Australia	50.22	51.43	51.16	51.65	NA

\* The definition of the wholesale electricity price index is available on the d-cyphaTrade website  
[http://www.d-cyphatrade.com.au/products/wholesale\\_electricity\\_price\\_i](http://www.d-cyphatrade.com.au/products/wholesale_electricity_price_i)  
 The WEPI applies for working days only.

**Figure 10: d-cyphaTrade WEPI**

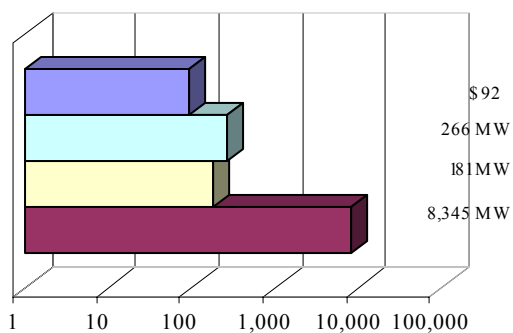


**Reserve**

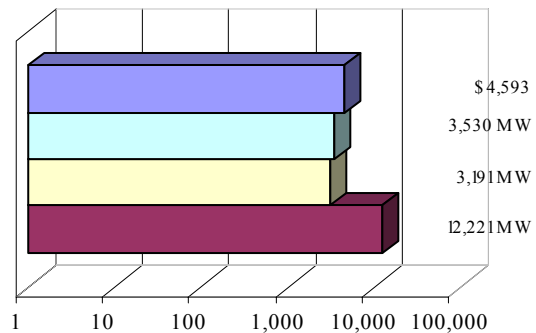
No low reserves were forecast.

Figures 11 to 15: spot price, net import and limit at time of weekly maximum demand

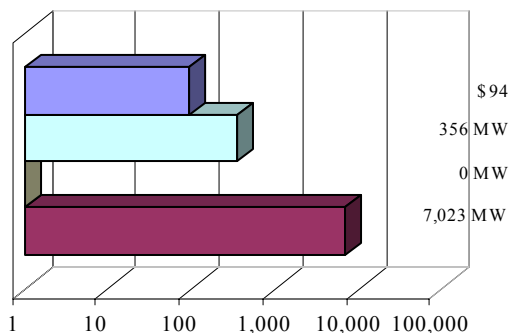
**Figure 11: Queensland**



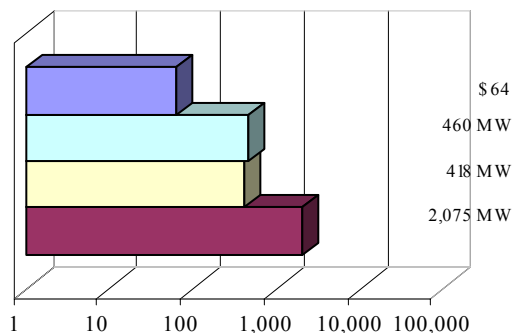
**Figure 12: New South Wales**



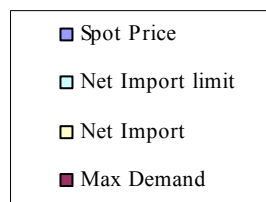
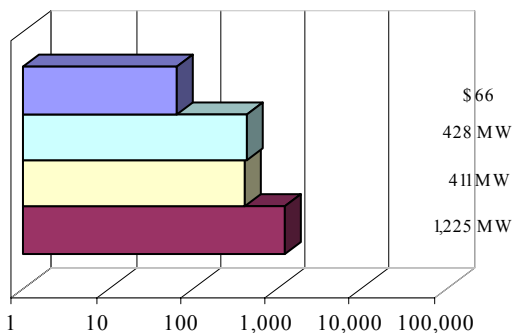
**Figure 13: Victoria**



**Figure 14: South Australia**



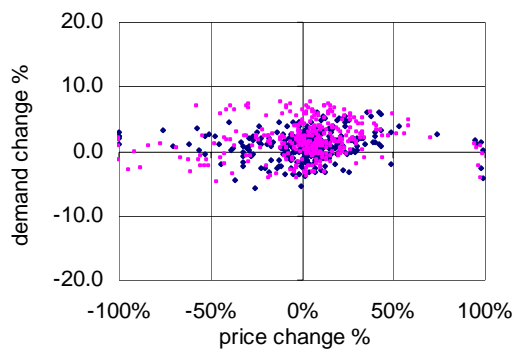
**Figure 15: Tasmania**



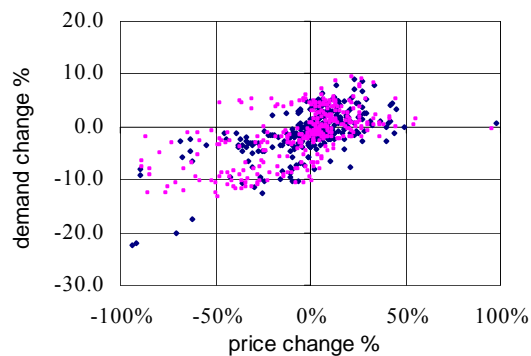
## Price variations

There were 106 trading intervals where actual prices significantly varied from forecasts made 4 and 12 hours ahead of dispatch. Figures 16 to 20 show the difference in actual and forecast price versus the difference in actual and forecast demand. The figures highlight the relationship 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.

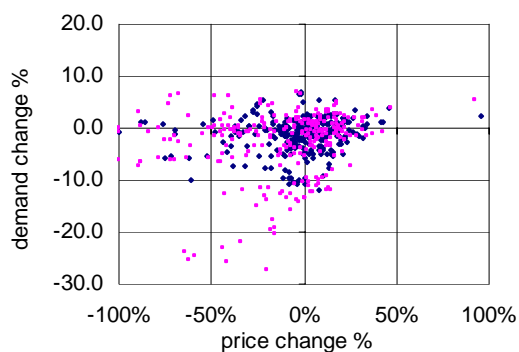
**Figure 16: Queensland**



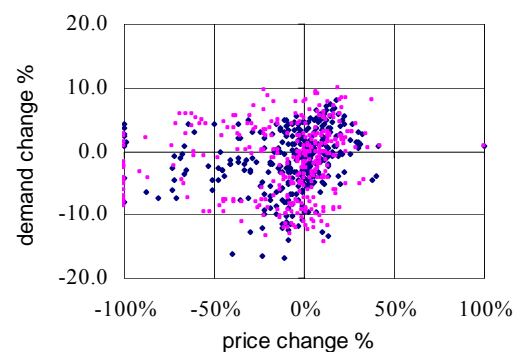
**Figure 17: New South Wales**



**Figure 18: Victoria**



**Figure 19: South Australia**



**Figure 20: Tasmania**

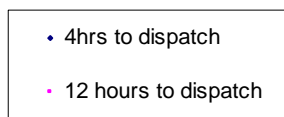
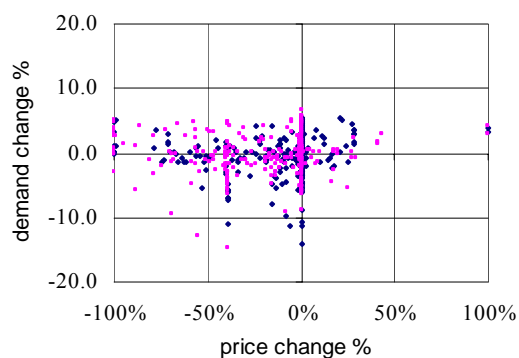
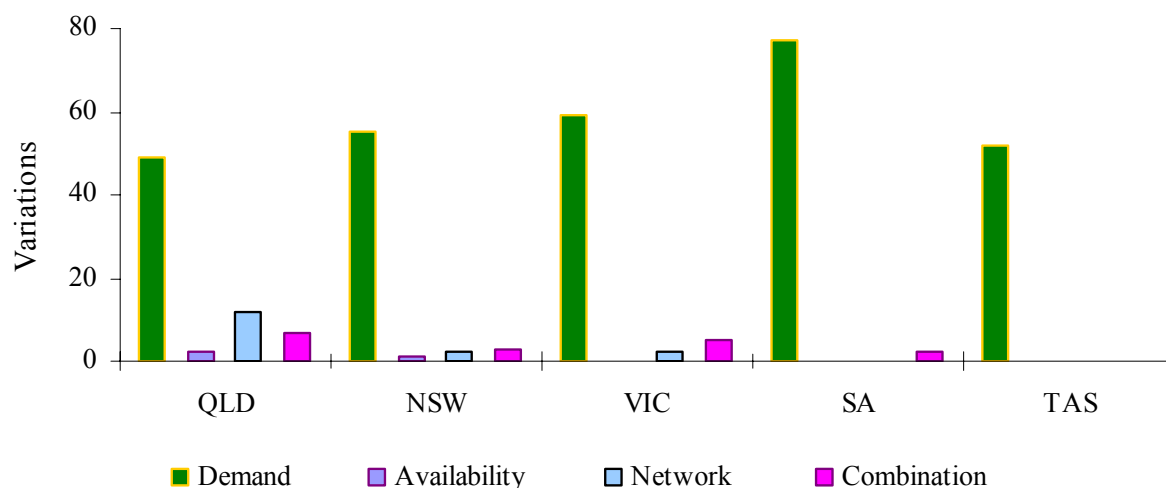


Figure 21 summarises the number and most probable reason for variations between forecast and actual prices.

**Figure 21: reasons for variations between forecast and actual prices**



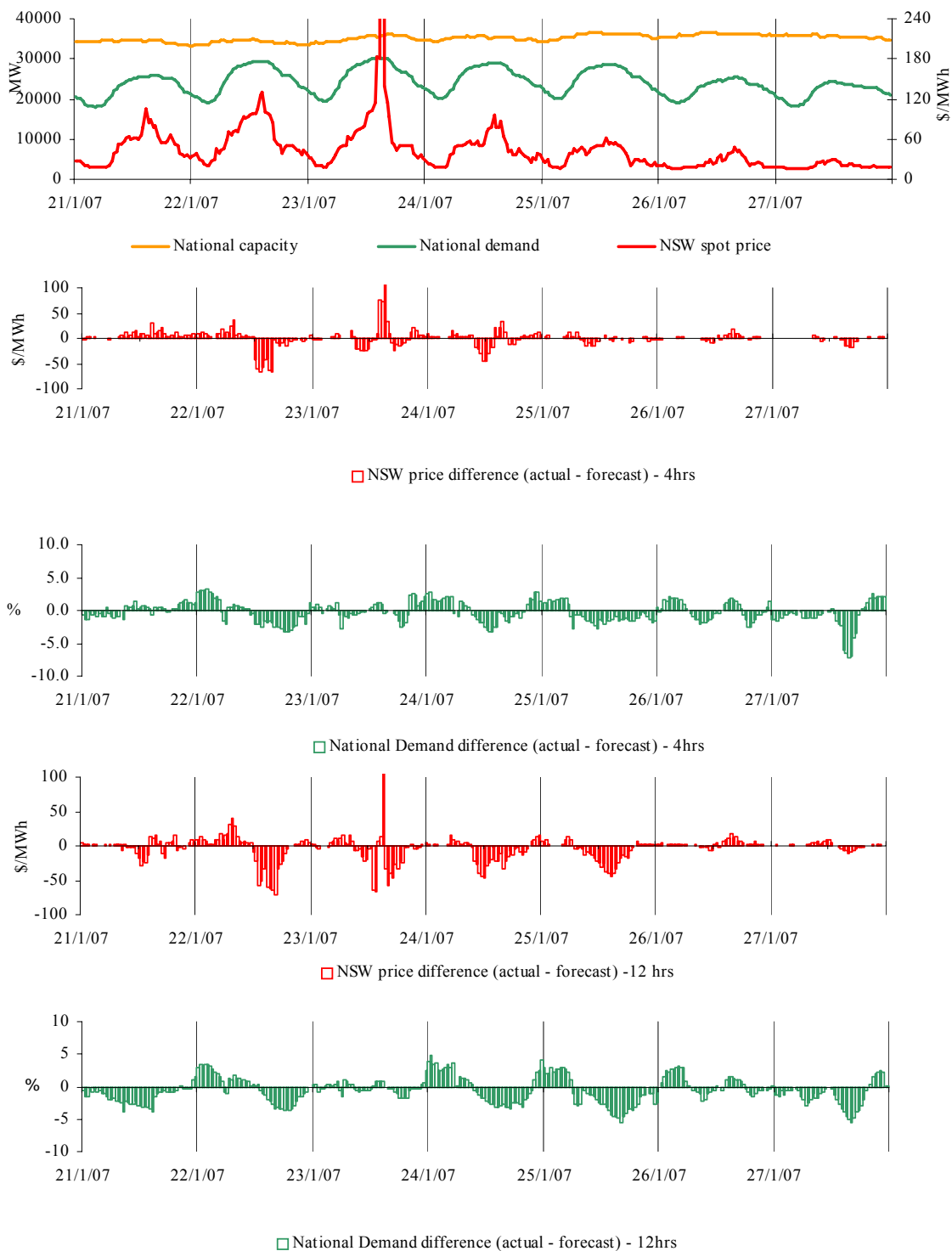
### Price and demand

Figures 22 – 56 set out details of spot prices and demand on a national and regional basis. They include the actual spot price, actual demand and variation from forecasts made 4 and 12 hours ahead of dispatch.

Spot prices within the national market are regularly aligned, with conditions in one region reflected across all others. The national market outcomes section highlights pricing events that occurred when spot prices were generally aligned across all regions of the national electricity market – the New South Wales spot price has been used to represent a pseudo national price under these conditions.

On a regional basis the differences between the maximum temperature and the temperature forecast at around 6.00 pm the day before are also included. In each section, the occurrences of all prices for the week greater than three times the average have been presented. The price forecast is compared to the demand and availability forecasts made 4 and 12 hours ahead, with significant changes to these forecasts explained.

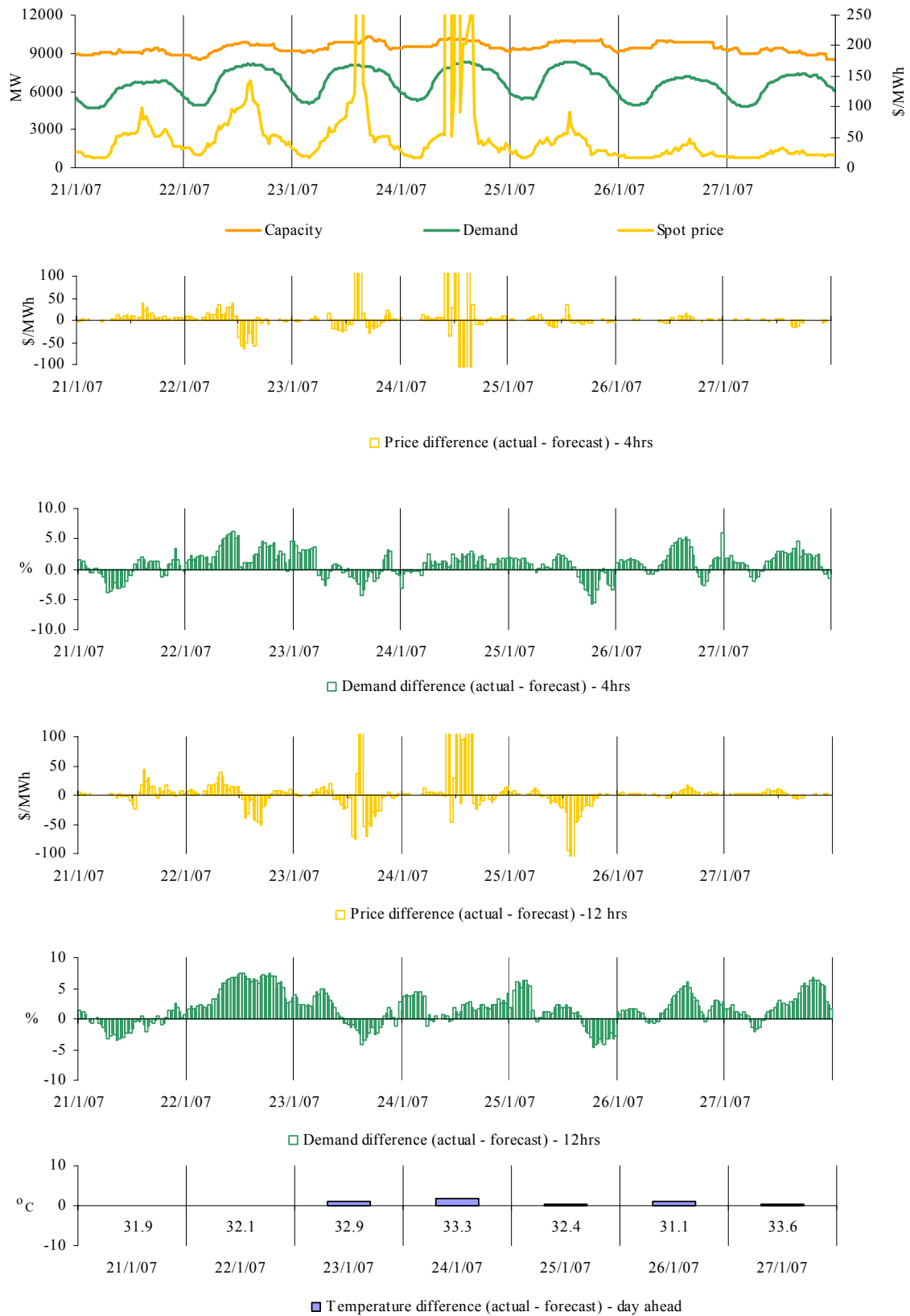
Figures 22-26: National market outcomes



There was no occasion where spot prices were nationally aligned and the New South Wales price<sup>1</sup> was greater than three times the New South Wales weekly average price of \$63/MWh.

<sup>1</sup> The New South Wales spot price has been used to represent a pseudo national price under these conditions.

**Figures 27-32: Queensland actual spot price, demand and forecast differences**





There were six occasions where the spot price in Queensland was greater than three times the weekly average price of \$149/MWh.

### Tuesday, 23 January

<b>3:00 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	5920.35	119.89	181.34
Demand (MW)	8046	8253	8229
Available capacity (MW)	9798	9866	9845
<b>3:30 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	7938.97	122.73	193.97
Demand (MW)	7919	8255	8252
Available capacity (MW)	9952	9862	9845

Conditions at the time saw demand less than that forecast four and 12 hours ahead, with prices generally aligned with those in New South Wales and Victoria.

From 2.30 pm, constraints were invoked to manage a network outage near Tarong. These constraints drove counter price flows across the Queensland to New South Wales interconnector. Additional constraints, to restrict the accumulation of negative settlement residues, were introduced by NEMMCO from 3 pm.

The AER will issue a report into the events of the day in accordance with clause 3.13.7 of the Rules.

### Wednesday, 24 January

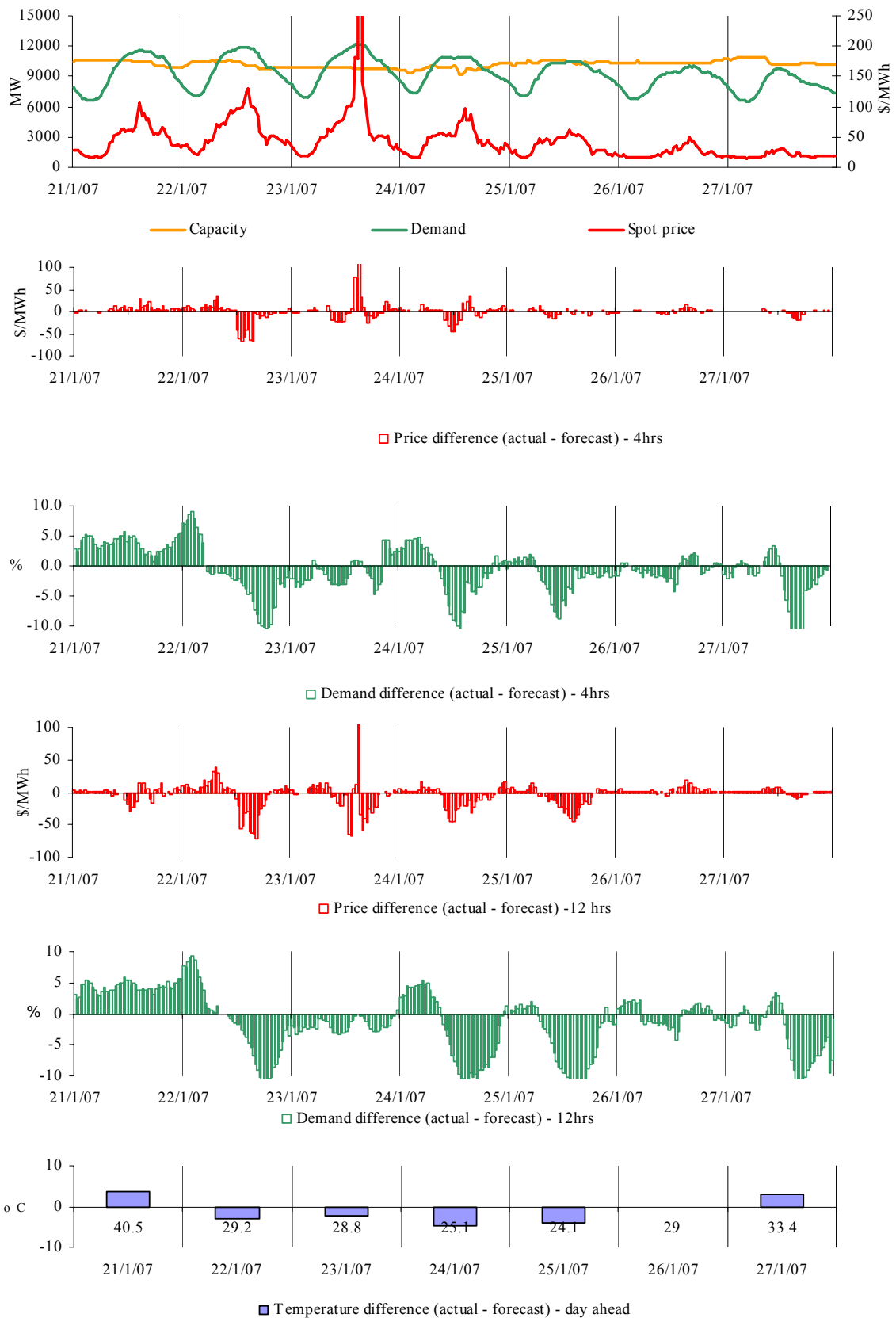
<b>10:30 am</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	1739.42	72.64	78.60
Demand (MW)	7886	7802	7854
Available capacity (MW)	10118	10114	10154
<b>11:00 am</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	6260.76	77.96	86.11
Demand (MW)	7874	7851	7920
Available capacity (MW)	10180	10114	10154
<b>12:30 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	2029.27	104.49	105.44
Demand (MW)	8173	8030	8080
Available capacity (MW)	10115	10114	10154
<b>1:00 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	4684.66	105.95	106.08
Demand (MW)	8176	8053	8121
Available capacity (MW)	10096	10114	10114

Conditions at the time saw demand close to forecast, reaching a new record of almost 8340 MW by 3 pm.

NEMMCO introduced constraints throughout the period to restrict the accumulation of negative settlements across the Queensland to New South Wales interconnector.

The AER will issue a report into the events of the day in accordance with clause 3.13.7 of the Rules.

**Figures 33-38 New South Wales actual spot price, demand and forecast differences**



There was one occasion where the spot price in New South Wales was greater than three times the New South Wales weekly average price of \$63/MWh.

**Tuesday, 23 January**

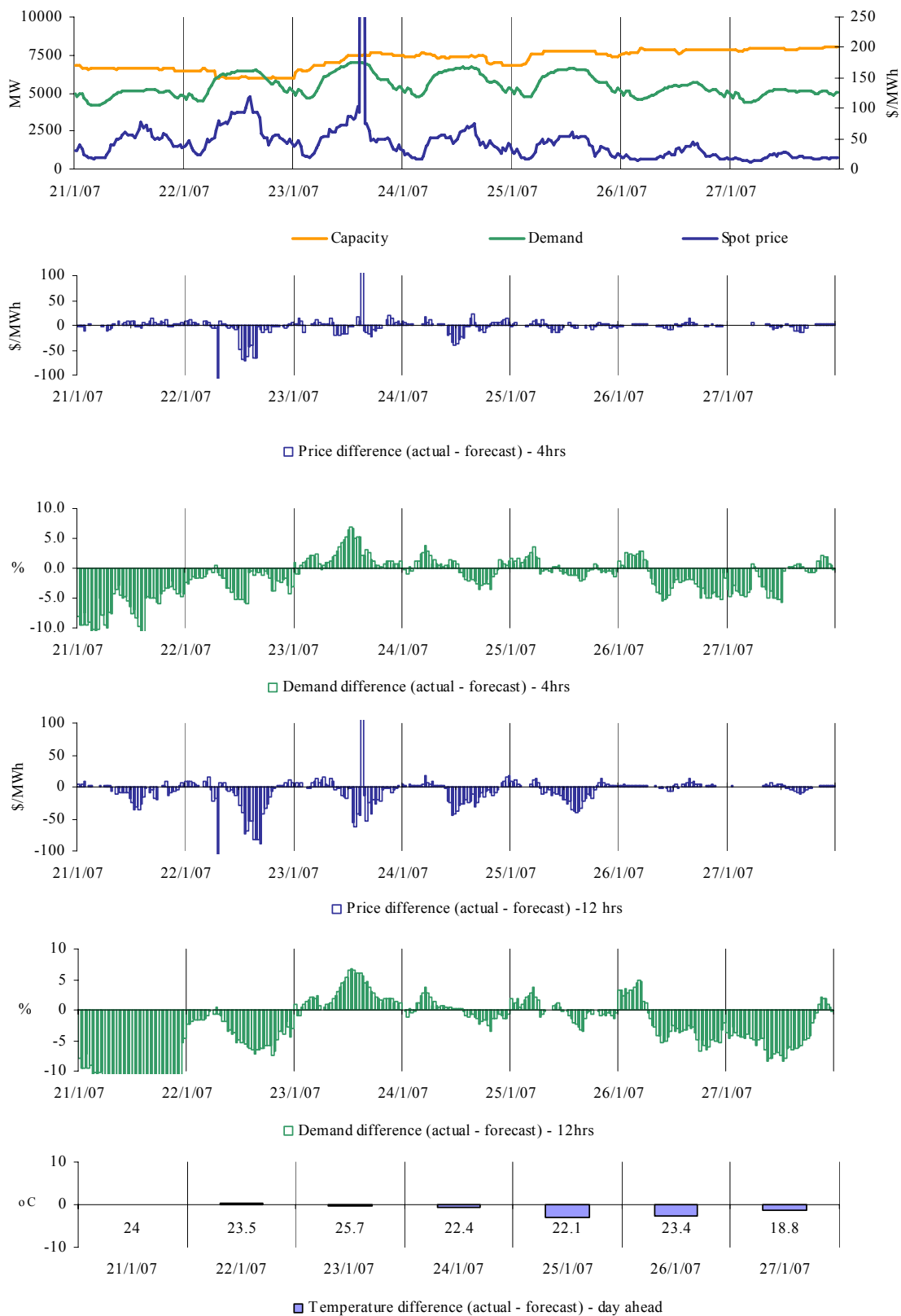
<b>3:30 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	4593.18	109.22	178.19
Demand (MW)	12221	12137	12262
Available capacity (MW)	9788	9881	9959

Conditions at the time saw demand close to that forecast four and 12 hours ahead, with prices generally aligned with those in Queensland and Victoria.

Over two rebids at 1.37 pm and 2.47 pm Macquarie Generation shifted a total of 670 MW of capacity across its Bayswater and Liddell units from prices below \$30/MWh to prices above \$9000/MWh. The rebid reasons given were “Load higher than anticipated”, “Constraint management” and “Milling limit”.

There was no other significant rebidding.

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



There was one occasion where the spot price in Victoria was greater than three times the weekly average price of \$50/MWh.

### **Tuesday, 23 January**

<b>3:30 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	1998.09	89.07	148.80
Demand (MW)	7004	6851	6618
Available capacity (MW)	7519	7522	7651

Conditions at the time saw demand 150 MW higher than forecast four hours ahead, with prices generally aligned with those in Queensland and New South Wales.

There was around 20 MW of capacity in Victoria priced between \$90/MWh and \$2000/MWh.

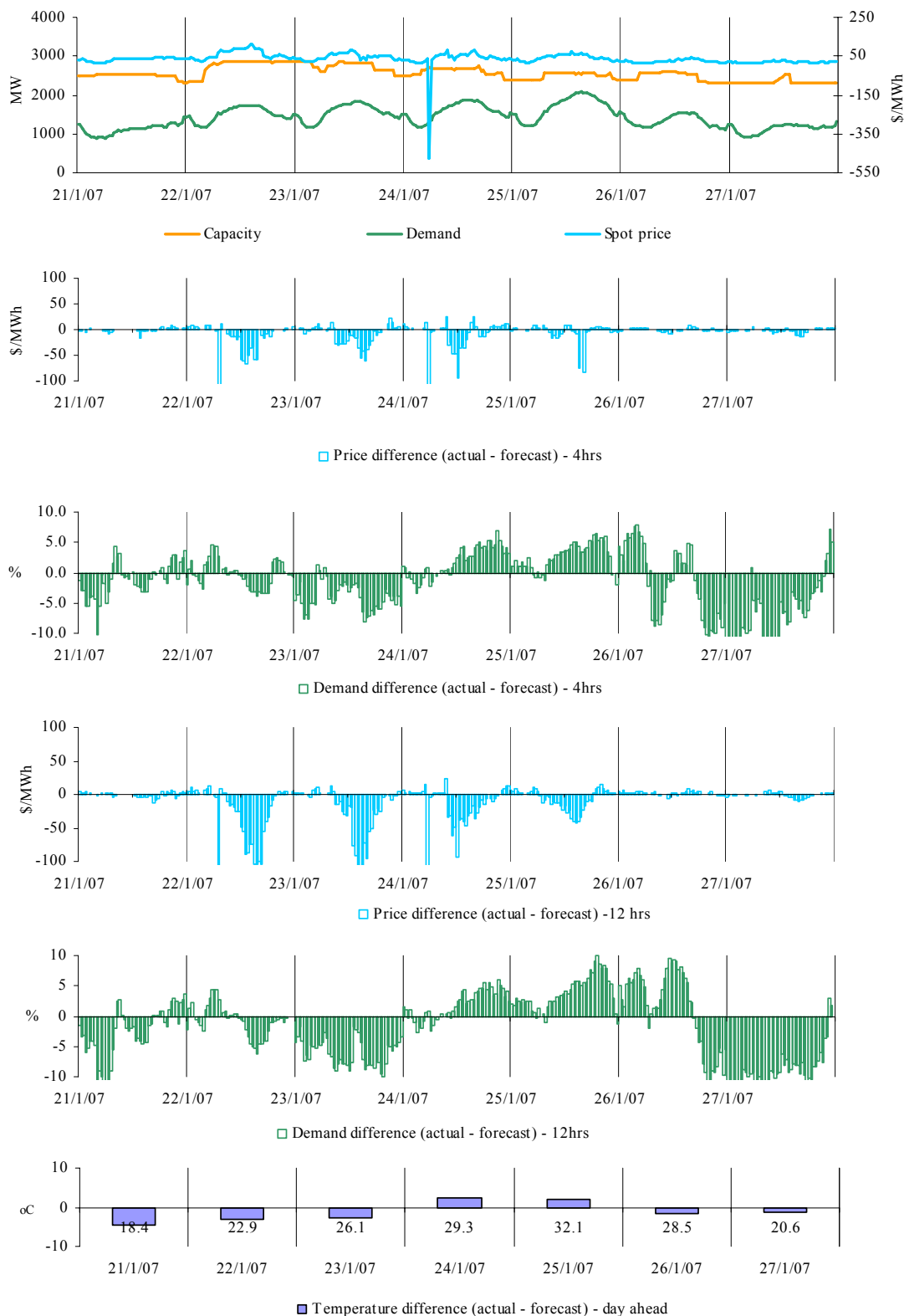
Over a number of rebids from 7.22 am, AGL Hydro shifted as much as 230 MW of capacity from prices greater than \$50/MWh into prices of less than \$10/MWh. At 3.09 pm, however, 70 MW of capacity at Somerton was rebid from prices of zero to above \$4600/MWh. The rebid reason given was “Portfolio optimisation::changed energy band”.

At 8.15 am, Alinta rebid 85 MW capacity into prices of less than \$10/MWh at Bairnsdale, committing both units for most of the day. The rebid reason given was “Market conditions – Price/Demand expectation”.

As part of its day-ahead offer, TRUenergy presented 160 MW of capacity at Yallourn at more than \$9000/MWh. At 8.53 am, this capacity was rebid into prices of less than \$10/MWh. The rebid reason given was “Plant RTS in Vic. Expect low sensitivities”. Over a number of rebids from 10.46 am, most of this capacity was returned to higher prices, with 50 MW priced around \$130/MWh and 80 MW priced above \$9000/MWh. The rebid reasons given included “Market cond::redist MW across port”, “Market Cond::Qld at \$10,000” and “Price volume tradeoff”.

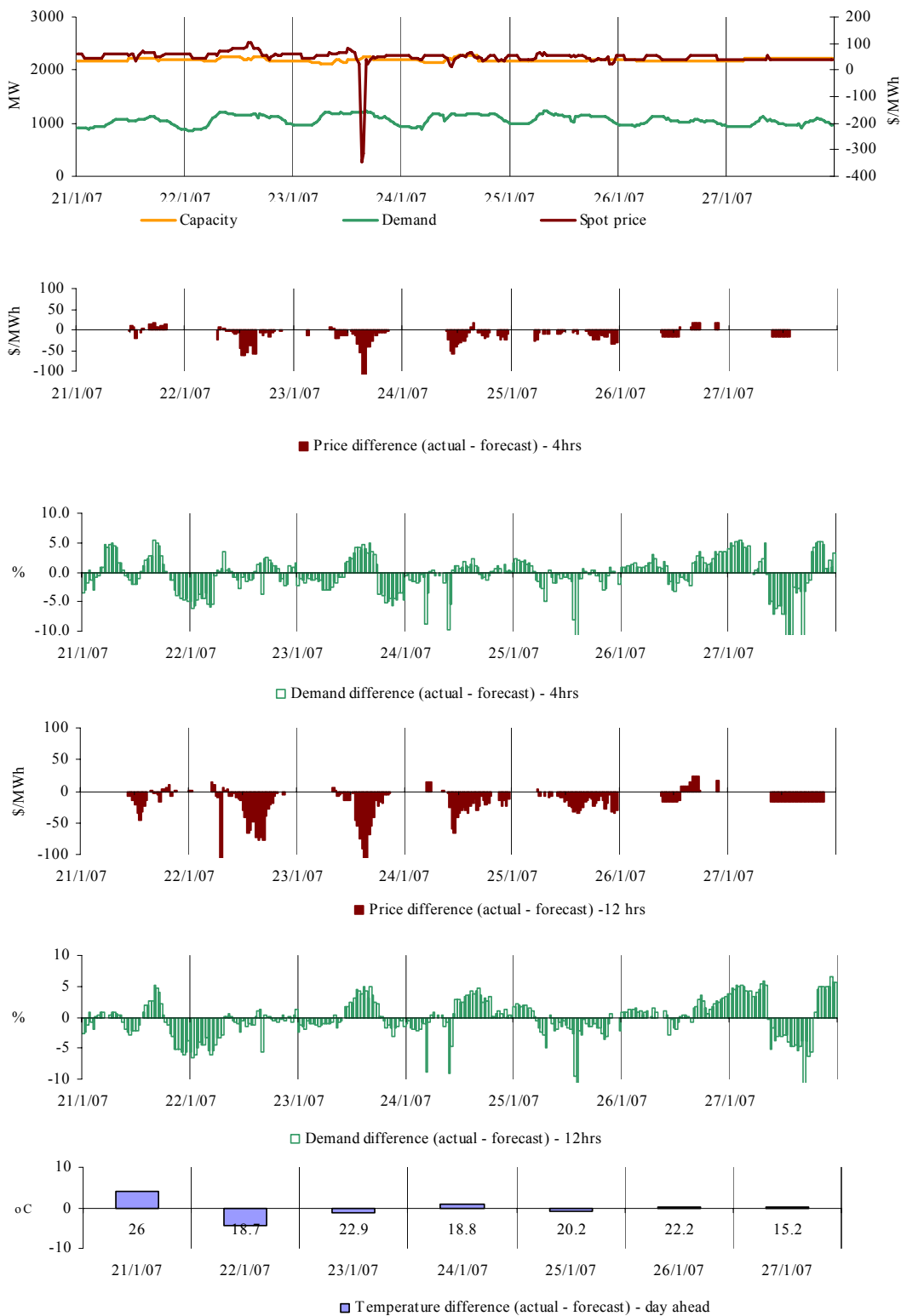
There was no other significant rebidding.

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



There was no occasion where the spot price in South Australia was greater than three times the weekly average price of \$40/MWh.

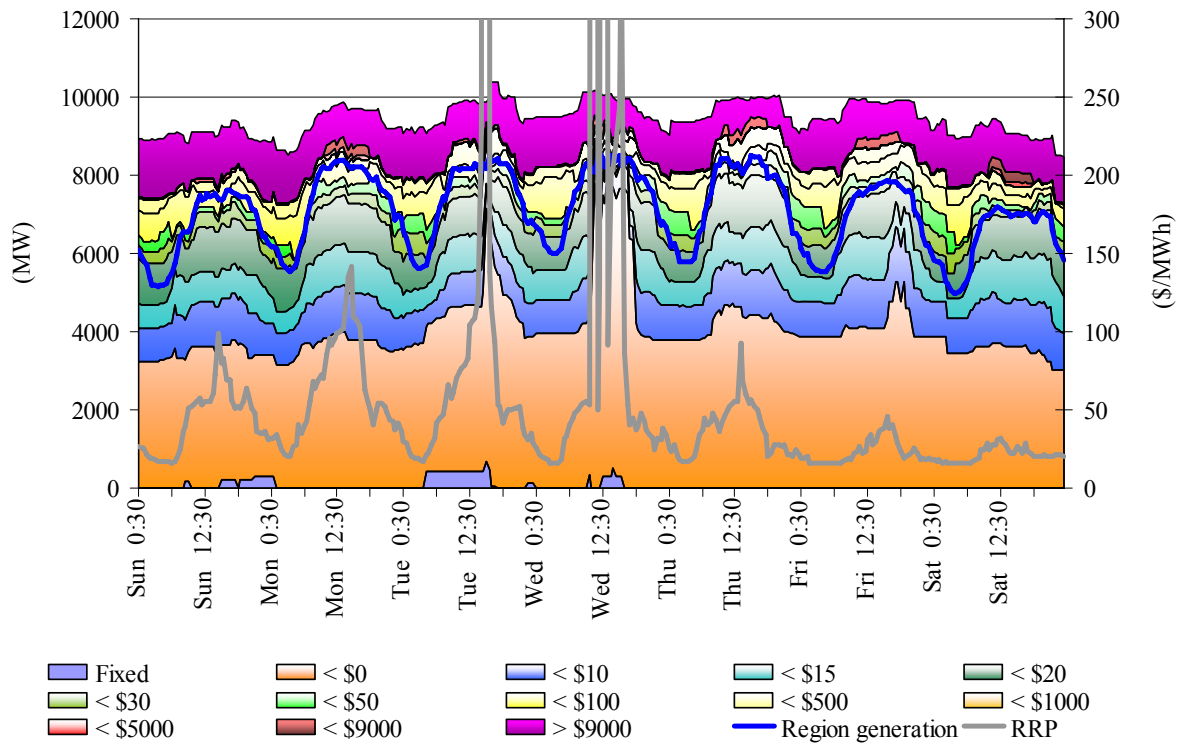
**Figures 51-56: Tasmania actual spot price, demand and forecast differences**



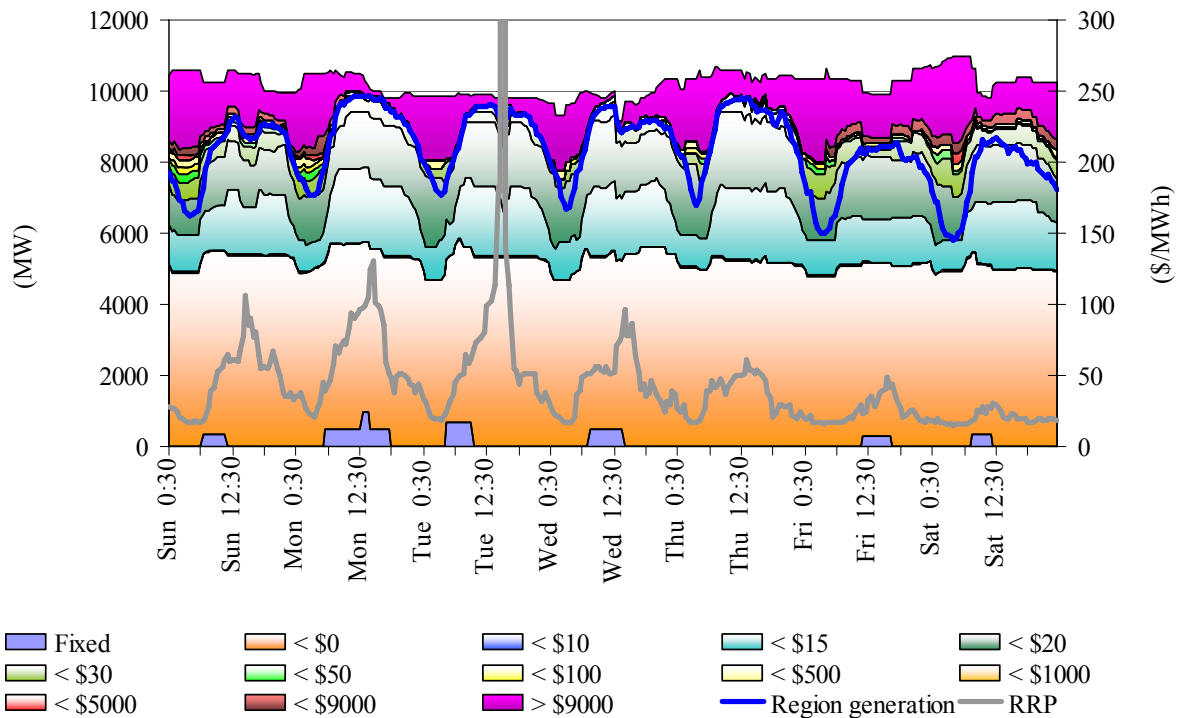
There was no occasion where the spot price in Tasmania was greater than three times the weekly average price of \$49/MWh.

Figures 57 – 61 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.

**Figure 57: Queensland closing bid prices, dispatched generation and spot price**

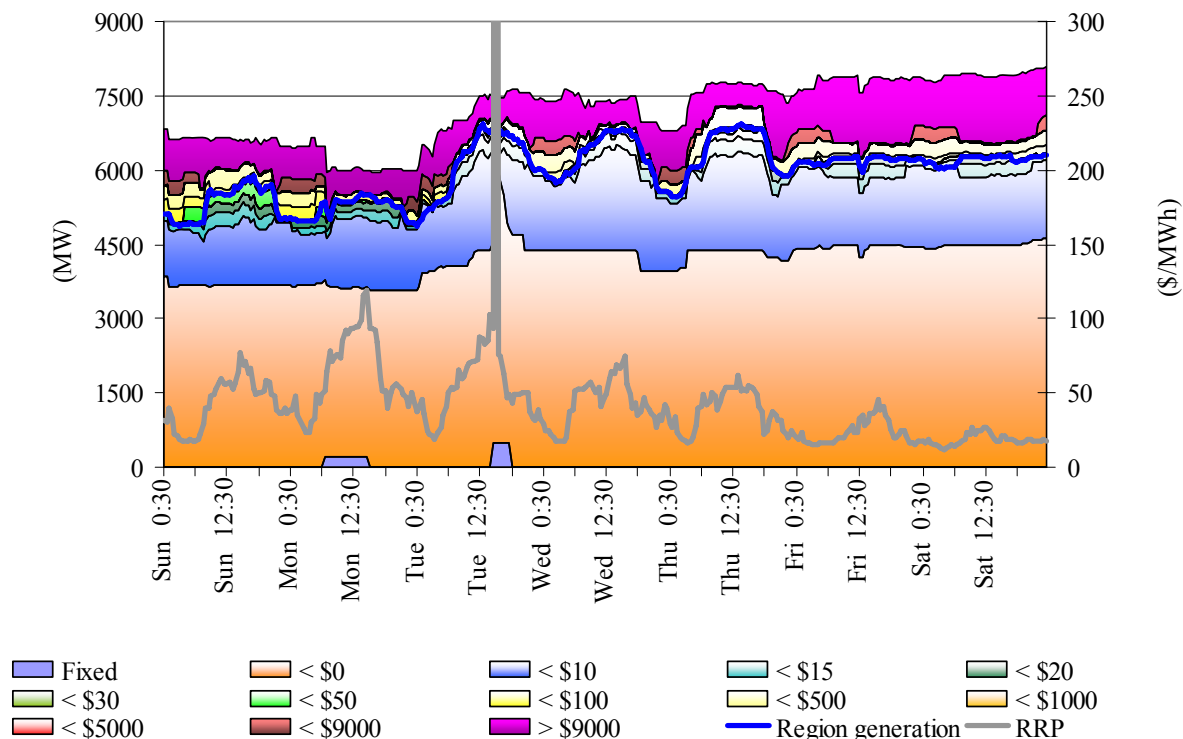


**Figure 58: New South Wales closing bid prices, dispatched generation and spot price**

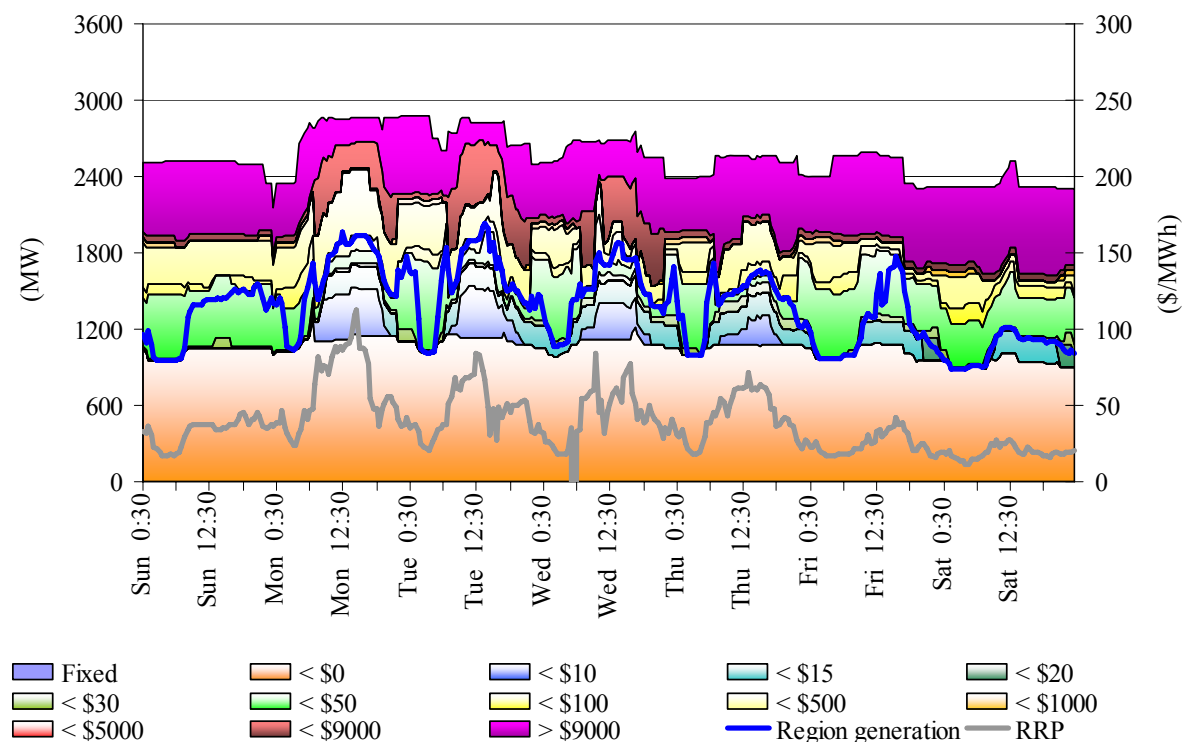




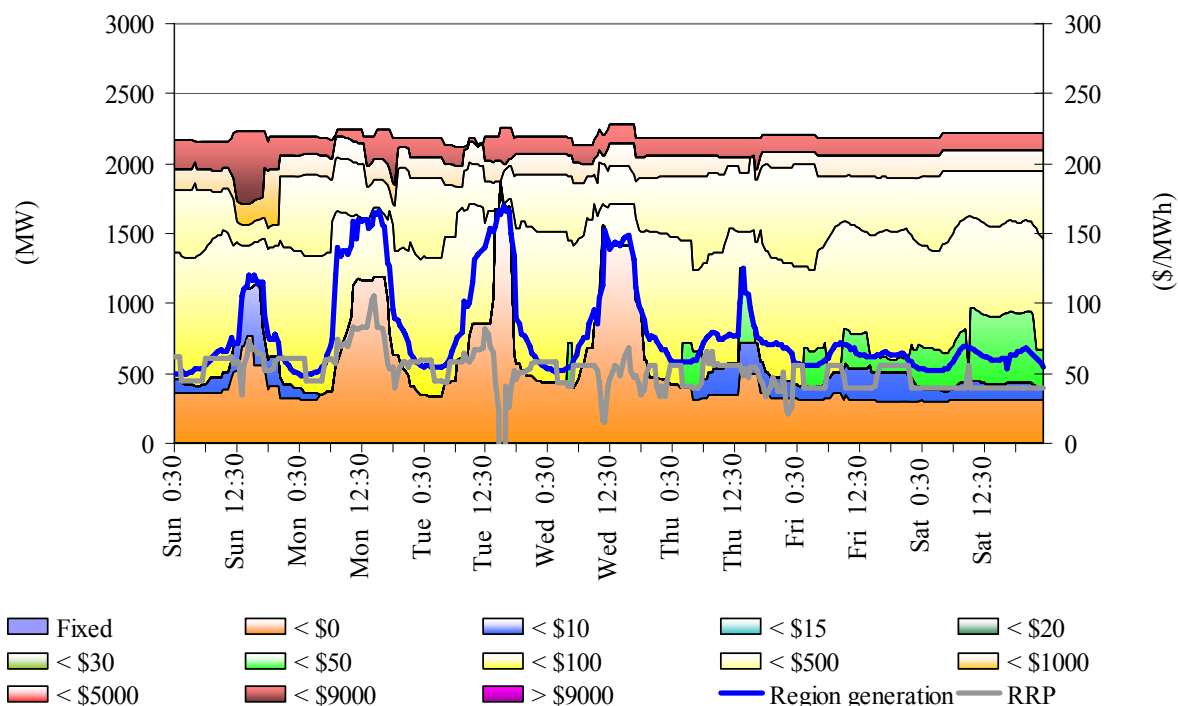
**Figure 59: Victoria closing bid prices, dispatched generation and spot price**



**Figure 60: South Australia closing bid prices, dispatched generation and spot price**



**Figure 61: 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 112 000 or 0.1 per cent of the energy market. Figure 62 summarises the volume weighted average prices and costs for the eight frequency control ancillary services across the mainland.

**Figure 62: frequency control ancillary service prices and costs for the mainland**

	Raise 6 sec	Raise 60 sec	Raise 5 min	Raise Reg	Lower 6 sec	Lower 60 sec	Lower 5 min	Lower reg
Last week (\$/MW)	0.36	0.23	0.70	1.69	0.04	0.19	0.54	1.03
Previous week (\$/MW)	113.48	124.69	113.52	61.00	3.70	0.97	104.50	31.72
Last quarter (\$/MW)	1.76	0.73	1.15	1.54	0.39	2.28	5.00	1.93
Market Cost (\$1000s)	\$14	\$8	\$36	\$26	\$0	\$2	\$12	\$14
% of energy market	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%

The total cost of ancillary services in Tasmania for the week was \$68 000 or 1 per cent of the total turnover in the energy market in Tasmania. A price of \$4222/MW occurred for raise 6 second services for one dispatch interval on Wednesday at 5.05 pm in Tasmania. This coincided with a change in the direction of flow across Basslink and an increase of 50 MW in the requirement for this service in Tasmania. Figure 63 summarises for Tasmania the prices and costs for the eight frequency control ancillary services.

**Figure 63: 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 (\$/MW)	6.08	0.51	0.56	1.26	0.21	0.90	0.58	0.81
Previous week (\$/MW)	269.62	1.96	66.36	3.57	0.86	0.58	0.59	2.07
Last quarter (\$/MW)	4.97	0.49	2.93	3.00	12.67	0.43	0.82	0.45
Market Cost (\$1000s)	\$25	\$6	\$8	\$14	\$1	\$6	\$3	\$5
% of energy market	0.28%	0.07%	0.09%	0.16%	0.01%	0.07%	0.04%	0.06%

Figure 64 shows the daily breakdown of cost for each frequency control ancillary service.

**Figure 64: daily frequency control ancillary service cost**

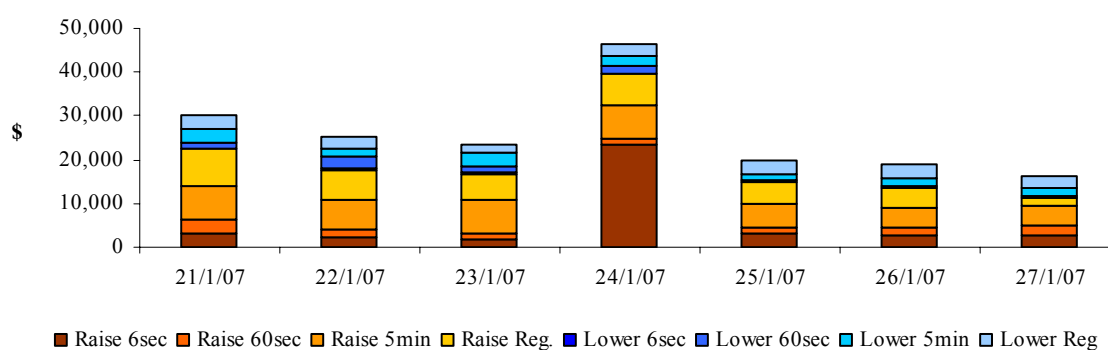
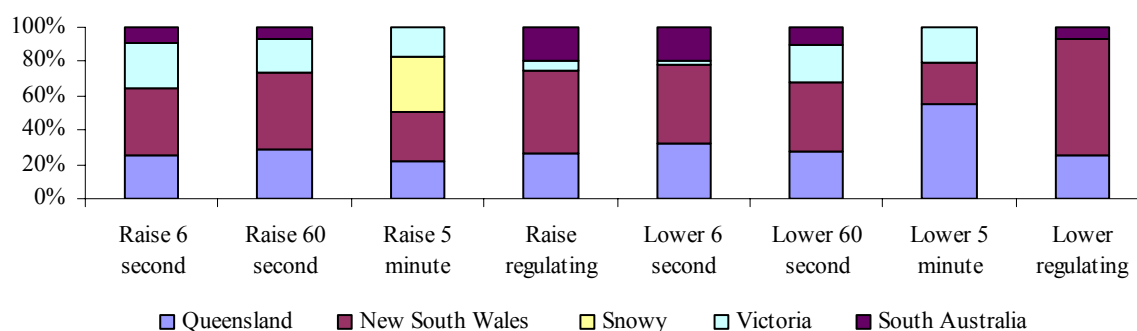


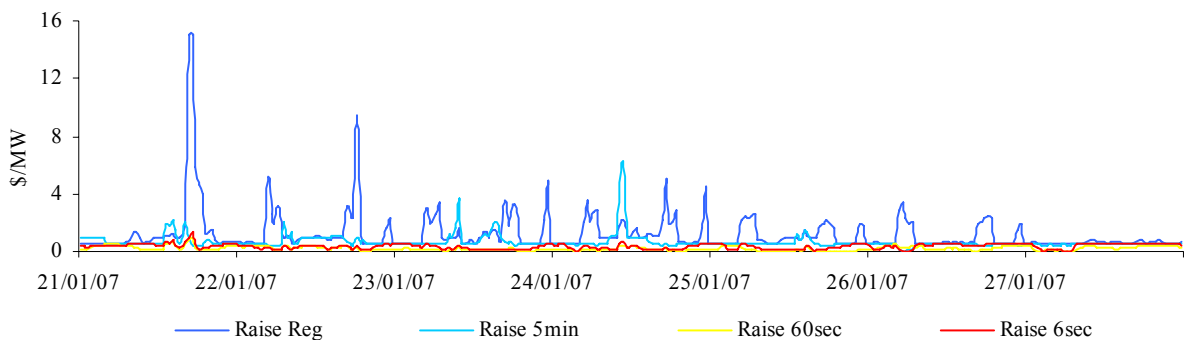
Figure 65 shows the contribution, on a percentage basis, that frequency control ancillary service providers are utilised (in each mainland region) to satisfy the total requirement for each service.

**Figure 65: regional participation in ancillary services on the mainland**

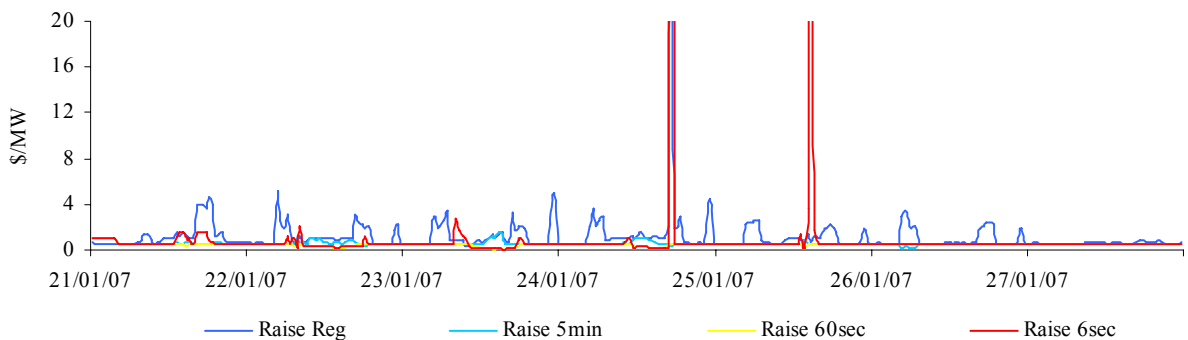


Figures 66 and 67 show 30-minute prices for each frequency control ancillary service throughout the week.

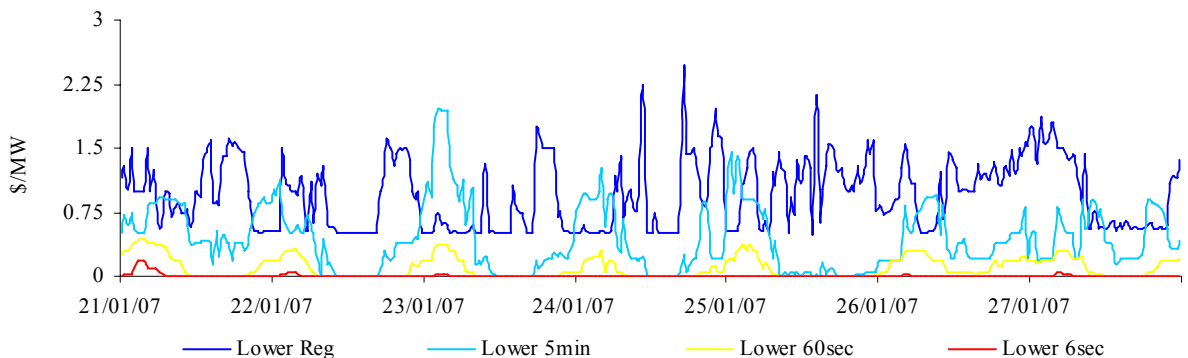
**Figure 66: prices for raise services**



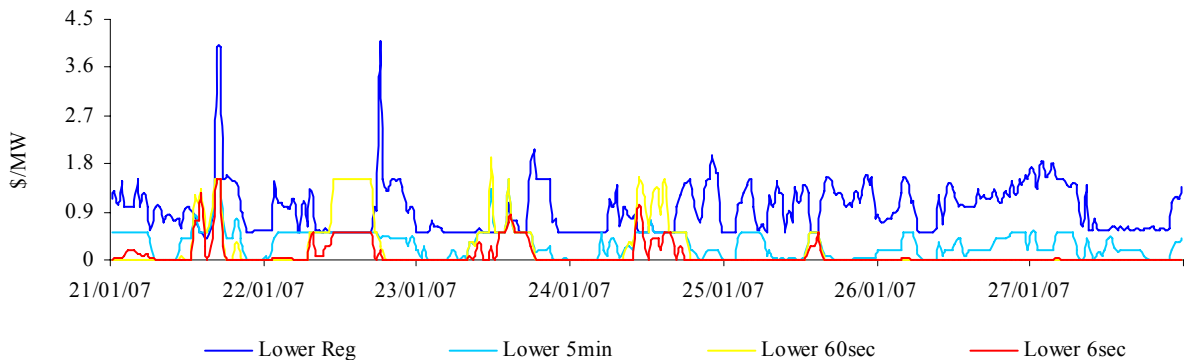
**Figure 66A: prices for raise services – Tasmania**



**Figure 67: prices for lower services**

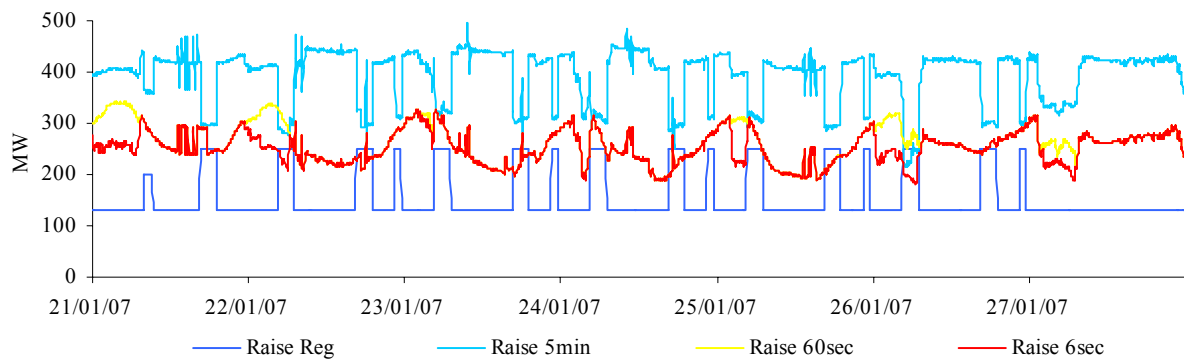


**Figure 67A: prices for lower services – Tasmania**

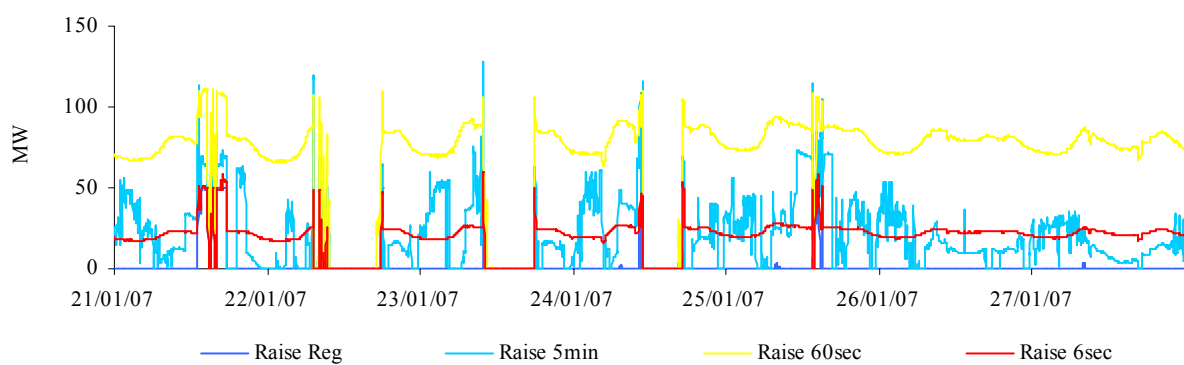


Figures 68 and 69 present for both raise and lower frequency control services the requirement, established by NEMMCO, for each service to satisfy the frequency standard.

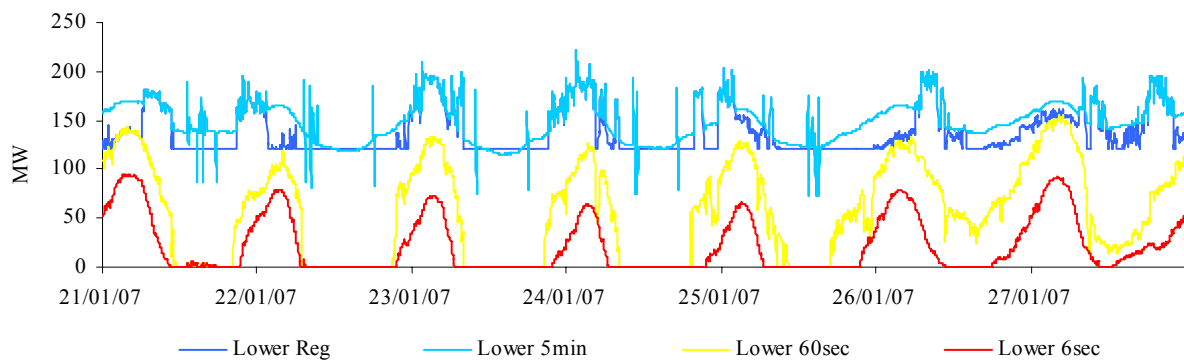
**Figure 68: raise requirements**



**Figure 68A: raise requirements – Tasmania**



**Figure 69: lower requirements**



**Figure 69A: lower requirements – Tasmania**

