

2 September – 8 September 2007

## Summary

Spot prices for the week averaged between \$41/MWh in Tasmania and \$61/MWh in Queensland.

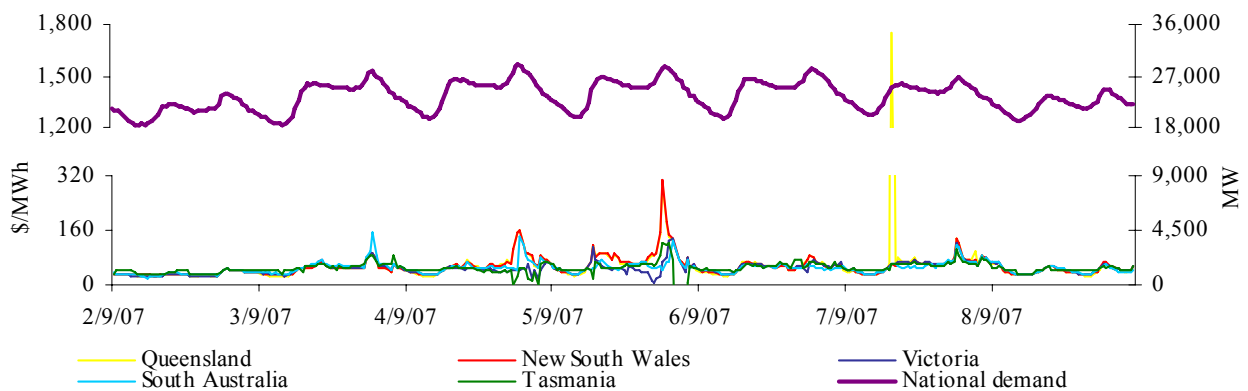
Turnover in the energy market in the week ended 8 September was \$213 million. The total cost of ancillary services for the week was \$604 000, or 0.3 per cent of energy market turnover.

Significant variations between actual prices and those forecast 4 and 12 hours ahead occurred in 90, or a quarter, of all trading intervals. Demand forecasts produced 4 and 12 hours ahead varied from actual by more than 5 per cent in a fifth of all trading intervals across the market. These variations were most frequent in South Australia, occurring in 40 per cent of trading intervals

## Energy prices

Figure 1 sets out the 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 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	61	56	49	51	41
Previous week	34	35	37	38	36
Same quarter last year	26	39	39	43	42
Financial year to date	58	62	65	67	70
% change from previous week*	▲ 82%	▲ 59%	▲ 33%	▲ 34%	▲ 14%
% change from same quarter last year**	▲ 136%	▲ 45%	▲ 25%	▲ 19%	▼ 2%
% change from year to date***	▲ 107%	▲ 53%	▲ 59%	▲ 46%	▲ 62%

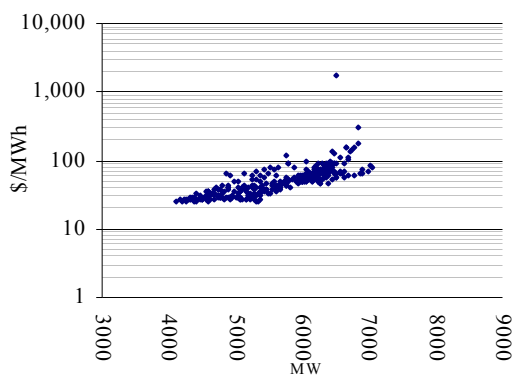
\*The percentage change between last week's average spot price and the average price for the previous week.

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

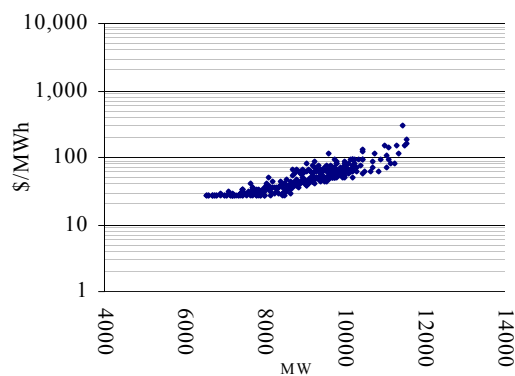
\*\*\*The percentage change between the average spot price for the current financial year to date and the average spot price over the similar period for the previous financial year.

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

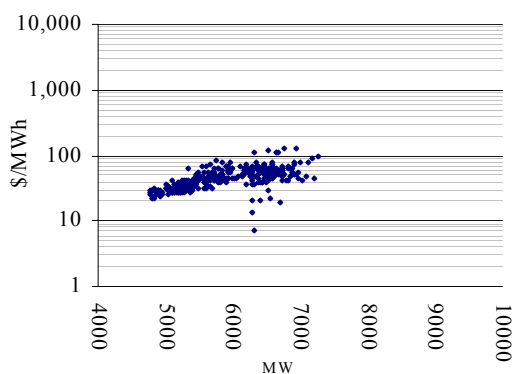
**Figure 3: Queensland**



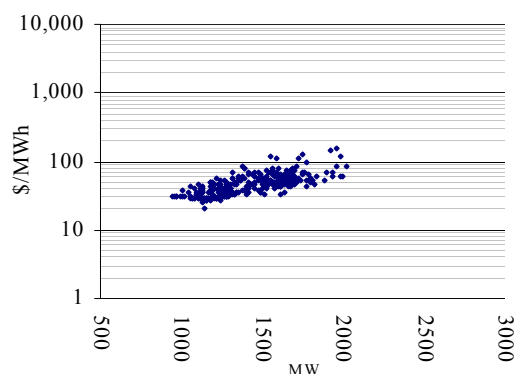
**Figure 4: New South Wales**



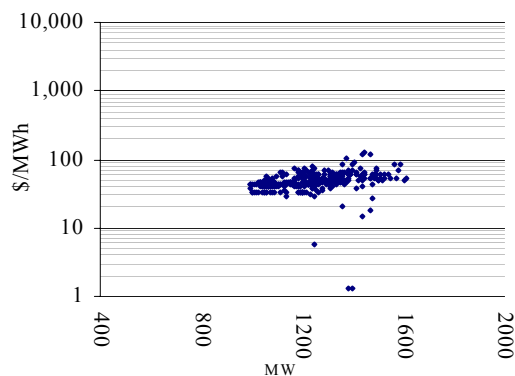
**Figure 5: Victoria**



**Figure 6: South Australia**



**Figure 7: Tasmania**



Maximum spot prices for the week ranged from \$126/MWh in Tasmania to \$1754/MWh in Queensland. 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	0.63	0.67	0.54	0.42	0.49
Previous week	0.34	0.23	0.25	0.28	0.39
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>

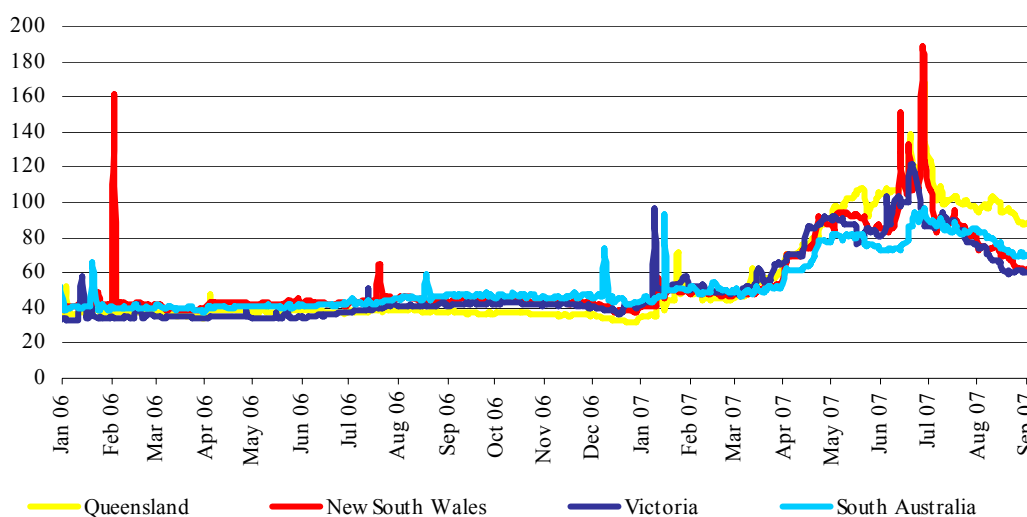
Figure 9 sets out the d-cyphaTrade wholesale electricity price index (WEPI)\* for each region throughout the week excluding Tasmania. Figure 10 sets out the WEPI since 1 January 2006.

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

	Monday	Tuesday	Wednesday	Thursday	Friday
Queensland	89.64	90.65	90.48	90.19	60.10
New South Wales	63.56	64.49	65.16	64.10	90.24
Victoria	61.25	61.31	60.77	60.44	68.91
South Australia	71.29	68.81	68.33	68.49	68.91

\* 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**



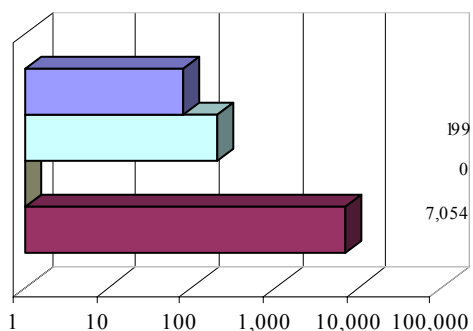
## Reserves

There were no low reserves forecast.

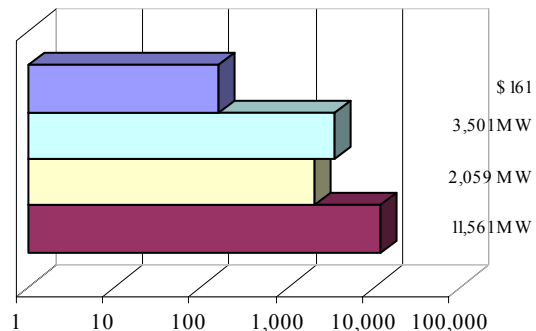
## Imports at time of maximum demand

Figures 11 to 15 show spot price, net imports and limits at the time of weekly maximum demand.

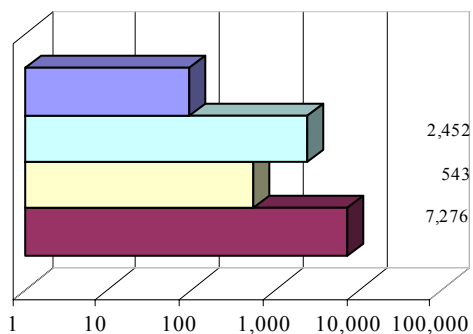
**Figure 11: Queensland**



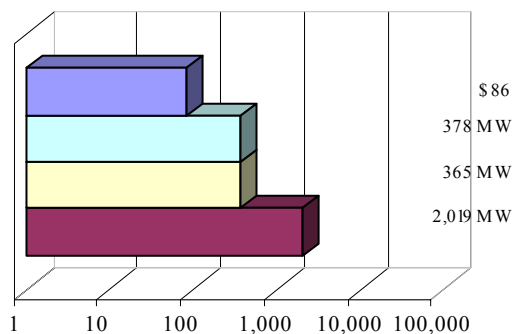
**Figure 12: New South Wales**



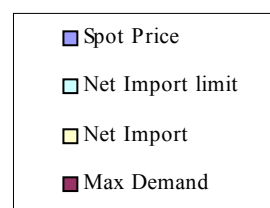
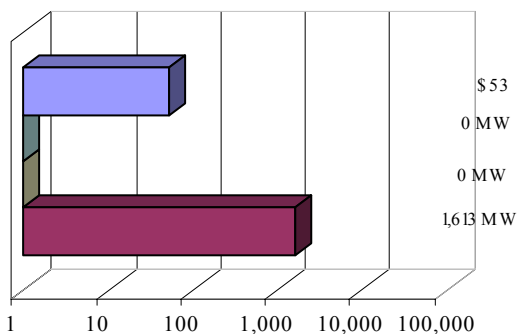
**Figure 13: Victoria**



**Figure 14: South Australia**



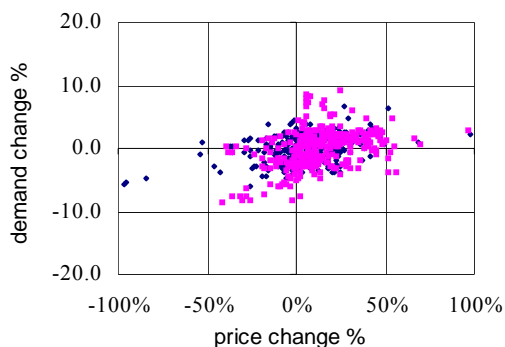
**Figure 15: Tasmania**



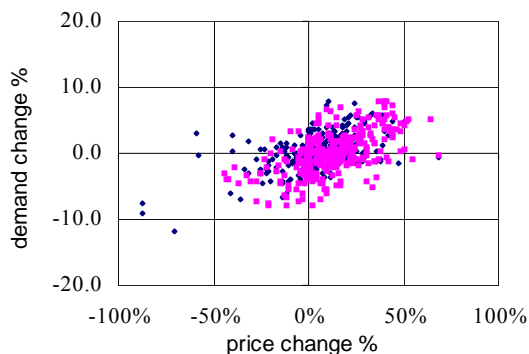
## Price variations

There were 90 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 against 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.

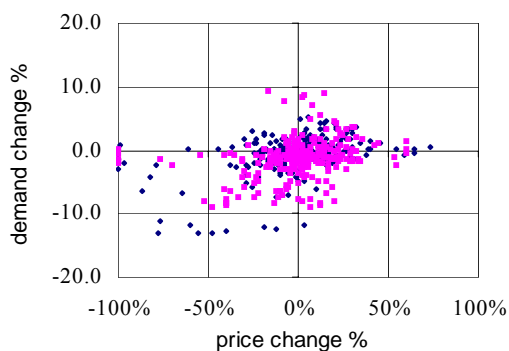
*Figure 16: Queensland*



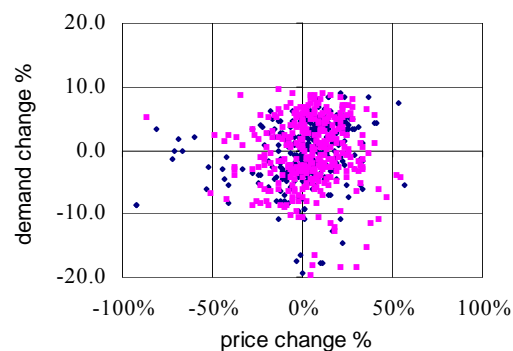
*Figure 17: New South Wales*



*Figure 18: Victoria*



*Figure 19: South Australia*



*Figure 20: Tasmania*

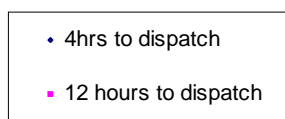
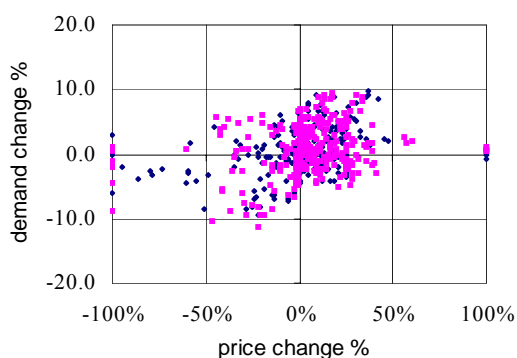
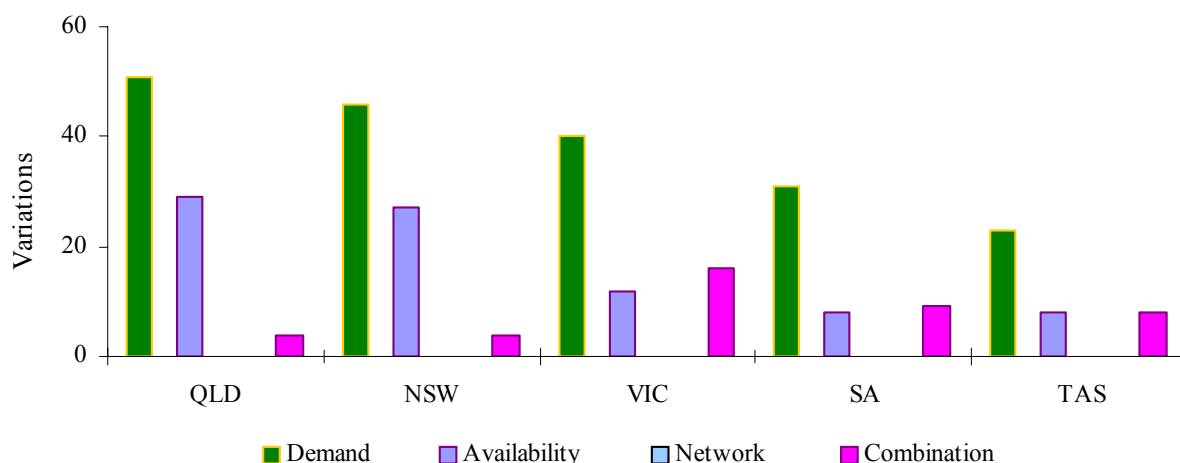


Figure 21 summarises the number and most probable reason for variations between forecast and actual prices.

**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.

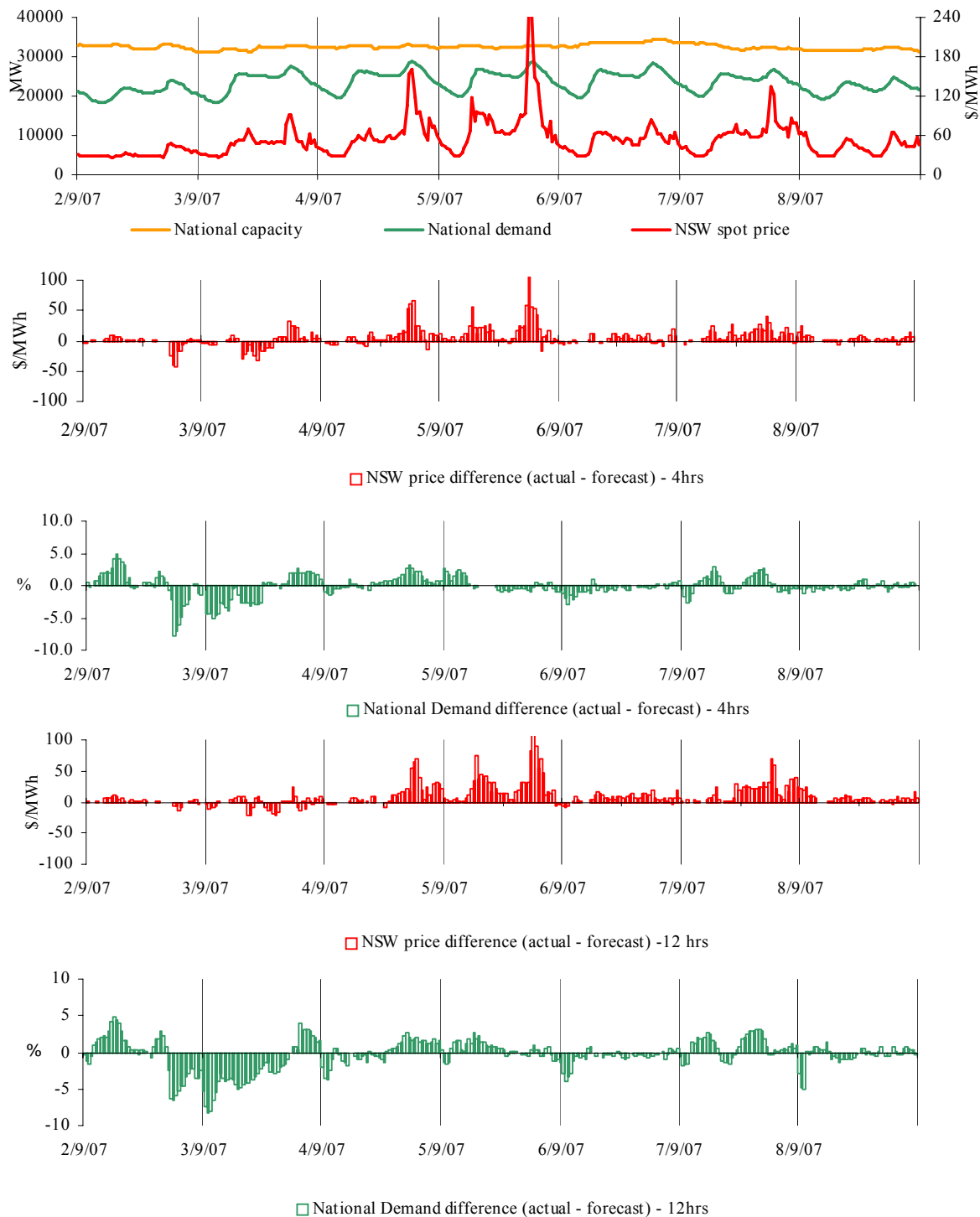
On a regional basis the differences between the maximum temperature and the temperature forecast at around 6.00 pm the day before are also included.

In each section, all prices for the week greater than three times the average have been presented. This threshold is used to filter the material price outcomes for the week. The actual price, demand and generator availability is compared with the forecasts made 4 and 12 hours ahead, with significant changes to these forecasts explained.

**National Market**

Spot prices within the national market are regularly aligned with conditions in one region reflected across all others. Figures 22-26 shows 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 as a proxy national price under these conditions as New South Wales is located in the centre of the NEM.

**Figures 22-26: National market outcomes**



There were two occasions where the spot prices aligned nationally and the New South Wales price was greater than three times the New South Wales weekly average price of \$56/MWh.

### Wednesday, 5 September

<b>6:30 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	305.17	97.97	95.64
Demand (MW)	28305	28367	28209
Available capacity (MW)	32790	33785	34262
<b>7:00 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	186.41	129.74	95.56
Demand (MW)	28667	28529	28376
Available capacity (MW)	32956	33420	34279

Conditions at the time saw demand close to that forecast but available capacity was 1000 MW lower than forecast four hours ahead.

At 10.37 am Enertrade rebid 85 MW of available capacity at Gladstone from prices below \$80/MWh to above \$9000/MWh. The reason given was “Co-optimisation::change MW distrib.”.

At 10.48 am Delta Electricity reduced available capacity at Wallerawang unit seven by 250 MW - all priced below \$40/MWh. The reason given was “Condenser repairs::capacity limit change”.

Over two rebids at 11.37 am and 2.05 pm Flinders Power reduced available capacity at Playford by 95 MW - all priced below zero. The reasons given were “Boiler problems” and “Playford shutdown urgent maintenance”.

At 2 pm AGL Hydro rebid 140 MW of available capacity at Oakey unit two from prices below \$280/MWh to above \$400/MWh. The reason given was “Portfolio optimisation-lead unit changed”.

At 2.17 pm Macquarie Generation reduced available capacity at Liddell units two and three by 370 MW. The reasons given were “Ash plant problems” and “PA fan limit extended”.

Over several rebids from 5.58 pm AGL Hydro reduced available capacity at McKay and West Kiewa by 206 MW. The reasons given were “Price change in market::changed MW availability” and “Price change in market::network constraints or losses”. At 6.19 pm they rebid 61 MW of available capacity at Oakey unit one from prices below \$280/MWh to above \$400/MWh. The reason given was “Portfolio optimisation”.

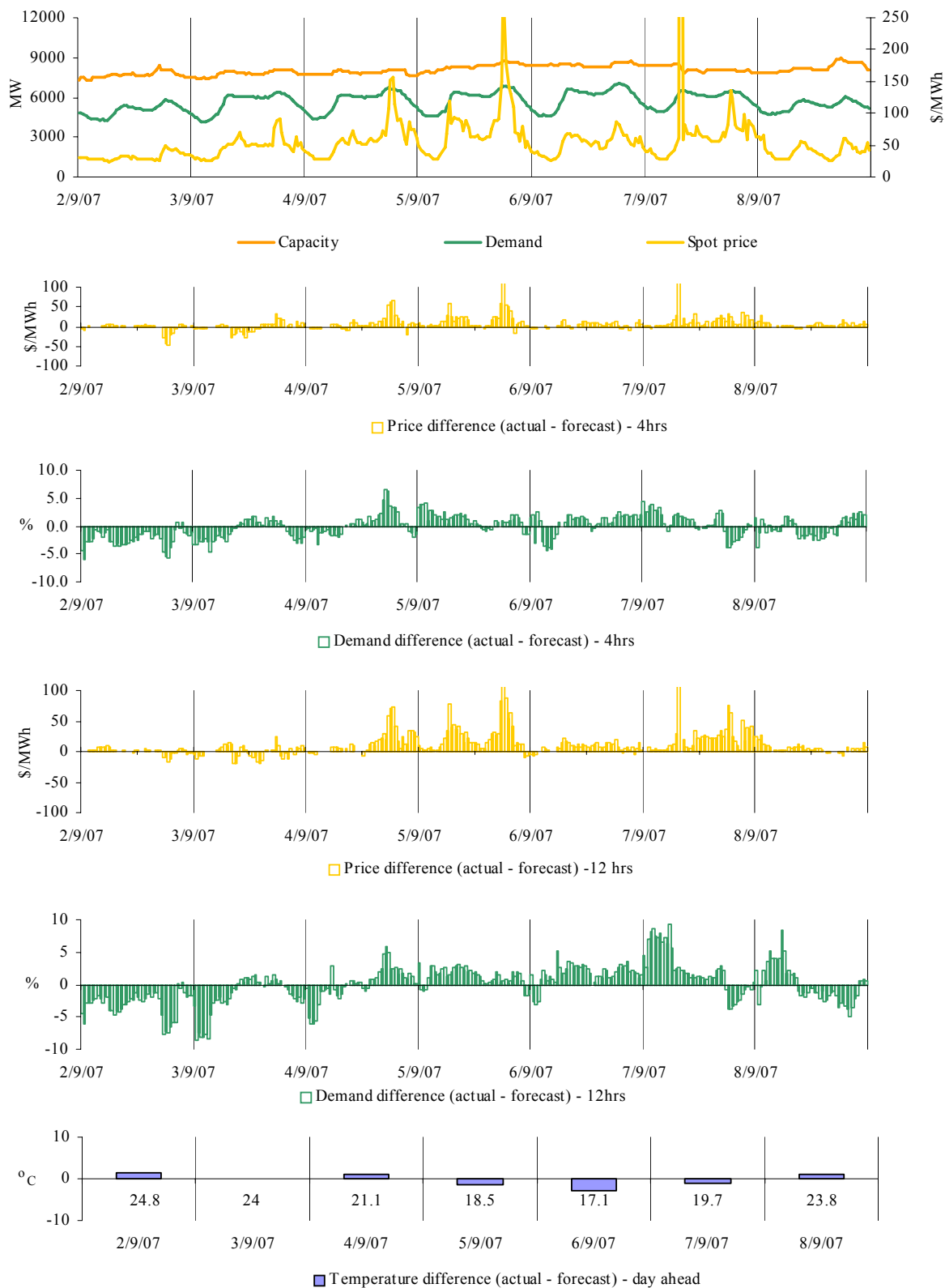
There was no other significant rebidding.



## Queensland

Figures 27-32 show spot market prices in Queensland over the week along with actual demand and differences between actual and forecast demand and prices.

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



There were two occasions where the spot price in Queensland was greater than three times the Queensland weekly average price of \$61/MWh. One of these occurred when prices were generally aligned across all regions and is detailed in the national market outcomes section. The remaining occasion is presented below.

### **Friday, 7 September**

<b>8:00 am</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	1754.21	44.54	53.97
Demand (MW)	6521	6372	6344
Available capacity (MW)	8289	8676	8711

Conditions at the time saw demand 150 MW higher than forecast and available capacity was 400 MW lower than forecast four hours ahead.

At around 7.40 am Millmerran unit 2 tripped from 280 MW. As a result imports across QNI into Queensland increased, the import limit decreased and the five-minute dispatch price spiked to \$10 000/MWh at 7.45 am. Between 7.29am and 7.39 am, Millmerran Energy Trader made several rebids that reduced capacity across its portfolio by 480 MW. All of this capacity was priced below \$20/MWh. The reasons given were “Coal issues” and “Changed plant conditions”.

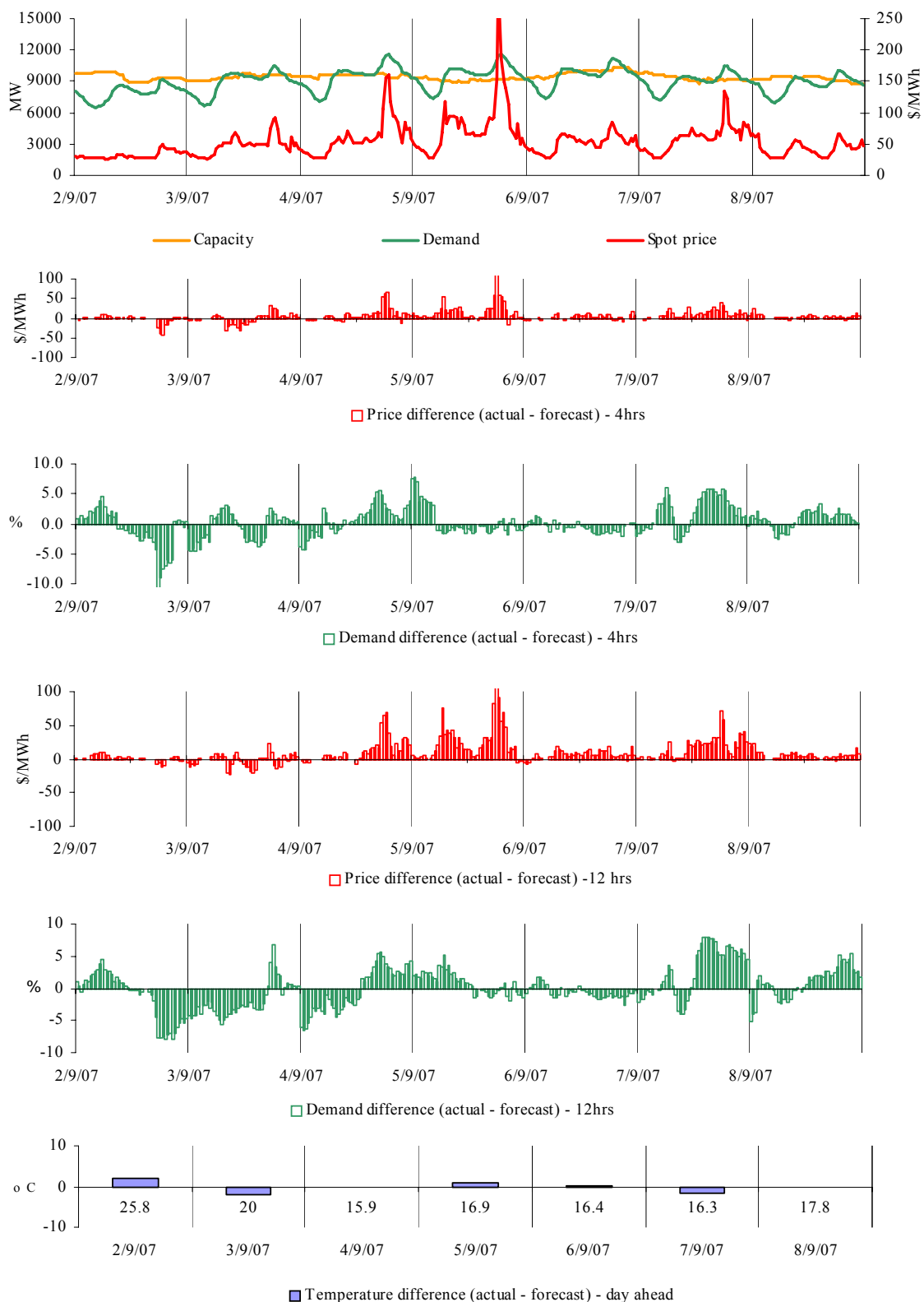
At 7.50 am AGL Hydro reduced available capacity by 141 MW at Oakey unit one - all of this capacity was priced below \$280/MWh. The reason given was “Portfolio optimisation”.

There was no other significant rebidding.

## New South Wales

Figures 33-38 show spot market prices in New South Wales over the week along with actual demand and differences between actual and forecast demand and prices.

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

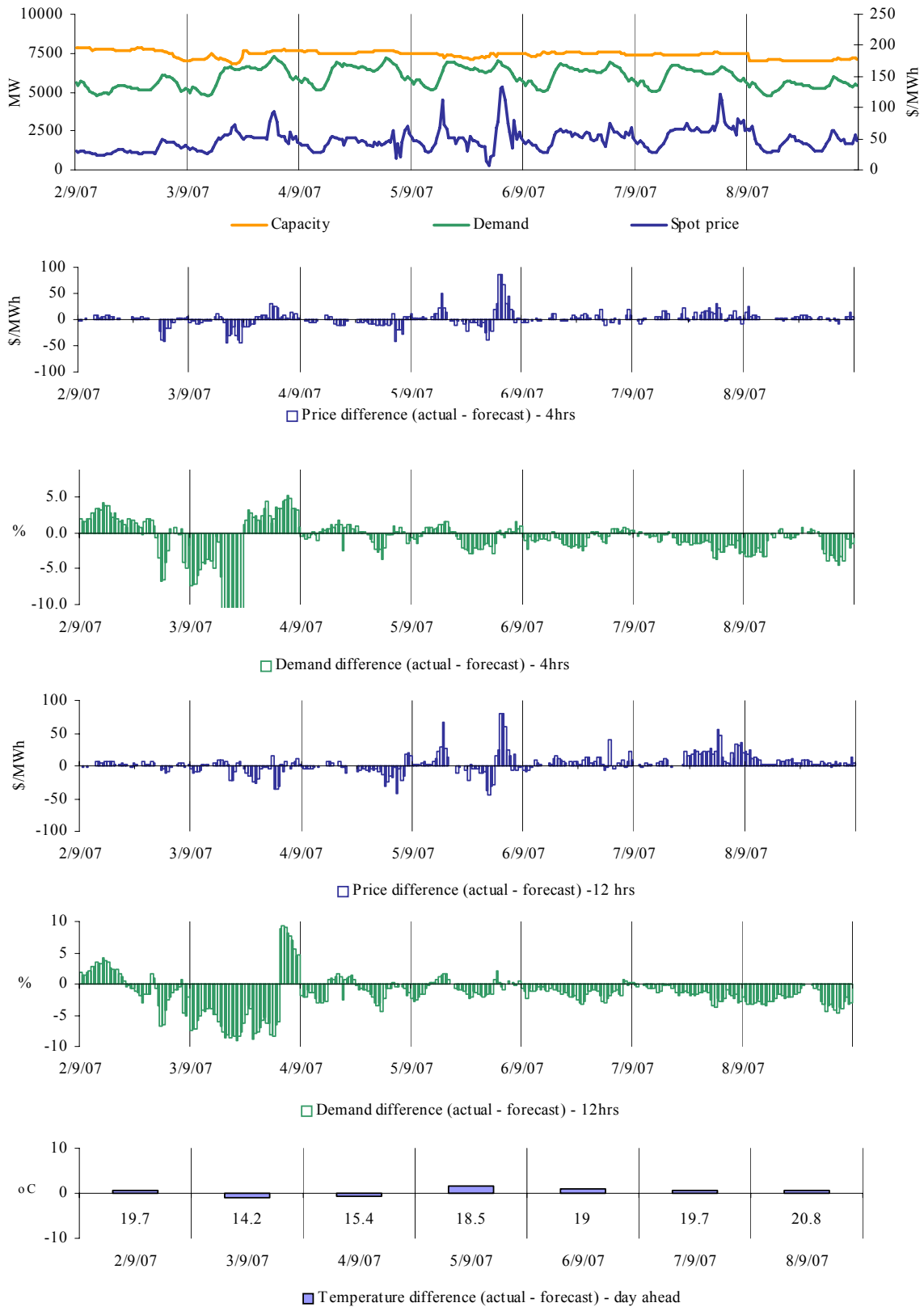


There were two occasions where the spot price in New South Wales was greater than three times the New South Wales weekly average price of \$56/MWh. These occurred when prices were generally aligned across all regions and are detailed in the national market outcomes section.

**Victoria**

Figures 39-44 show spot market prices in Victoria over the week along with actual demand and differences between actual and forecast demand and prices.

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

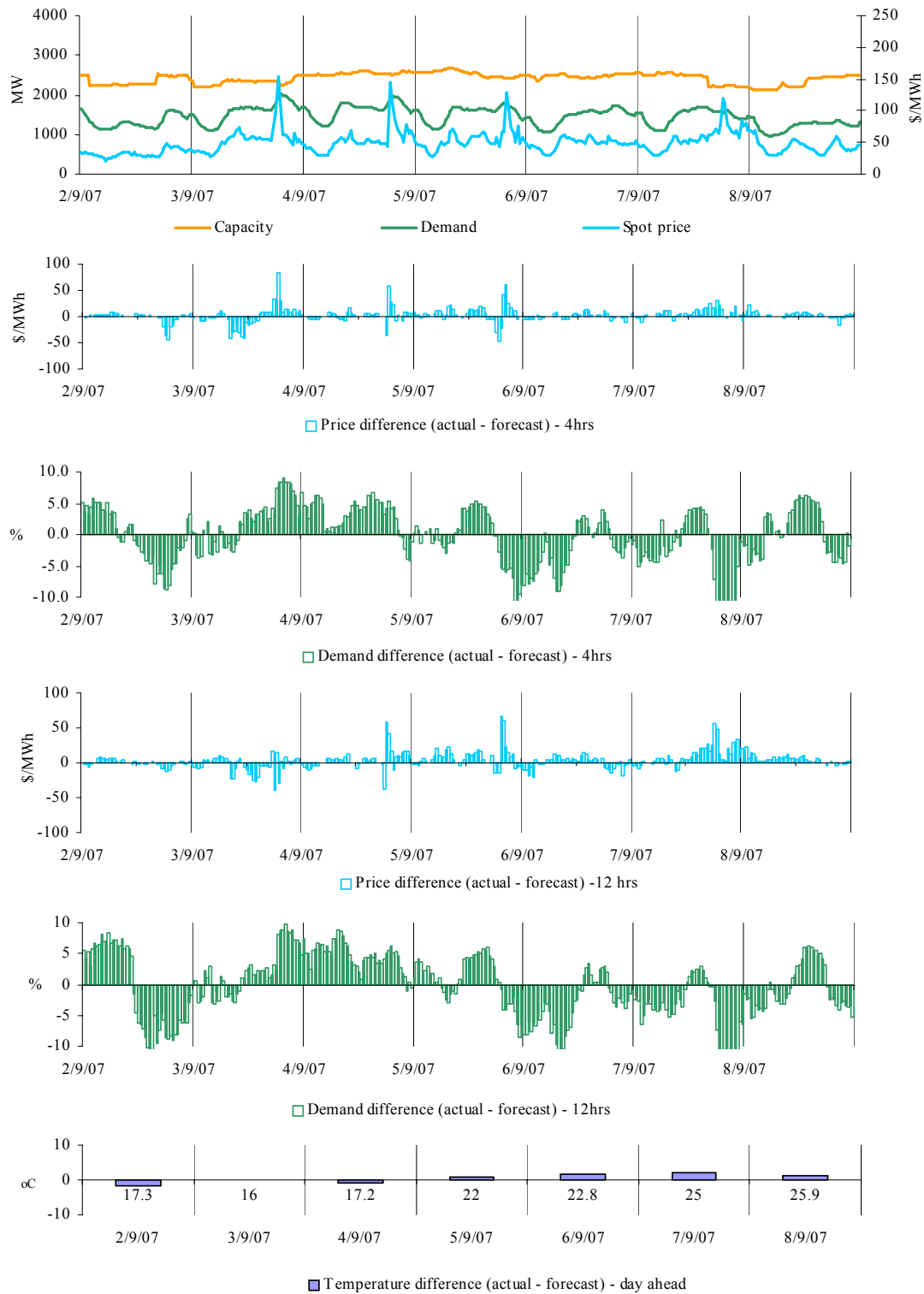


There were no occasions where the spot price in Victoria was greater than three times the Victoria weekly average price of \$49/MWh.

## South Australia

Figures 45-50 show spot market prices in South Australia over the week along with actual demand and differences between actual and forecast demand and prices.

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



There was one occasion where the spot price in South Australia was greater than three times the South Australia weekly average price of \$51/MWh.

### **Monday, 3 September**

<b>7:00 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	153.16	70.94	138.59
Demand (MW)	1966	1820	1808
Available capacity (MW)	2304	2400	2345

Conditions at the time saw demand 150 MW higher than forecast four hours ahead and available capacity 100 MW below that forecast four hours ahead.

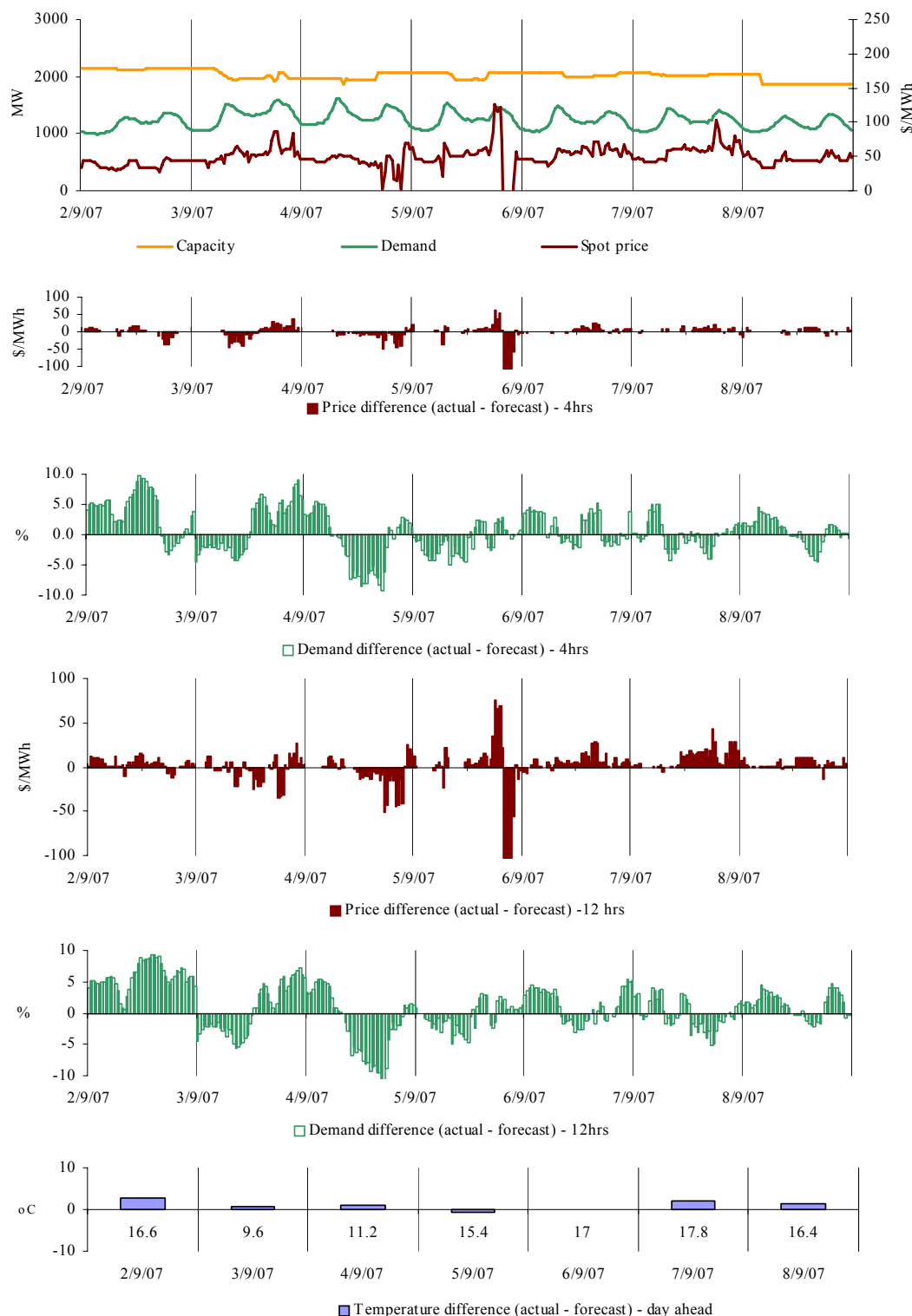
At 5.42 pm Flinders Power delayed the return to service of Northern Power Station, with a rebid that reduced available capacity by 60 MW. It returned to service from 8 pm.

There was no other significant rebidding.

## Tasmania

Figures 51-56 show spot market prices in Tasmania over the week along with actual demand and differences between actual and forecast demand and prices.

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

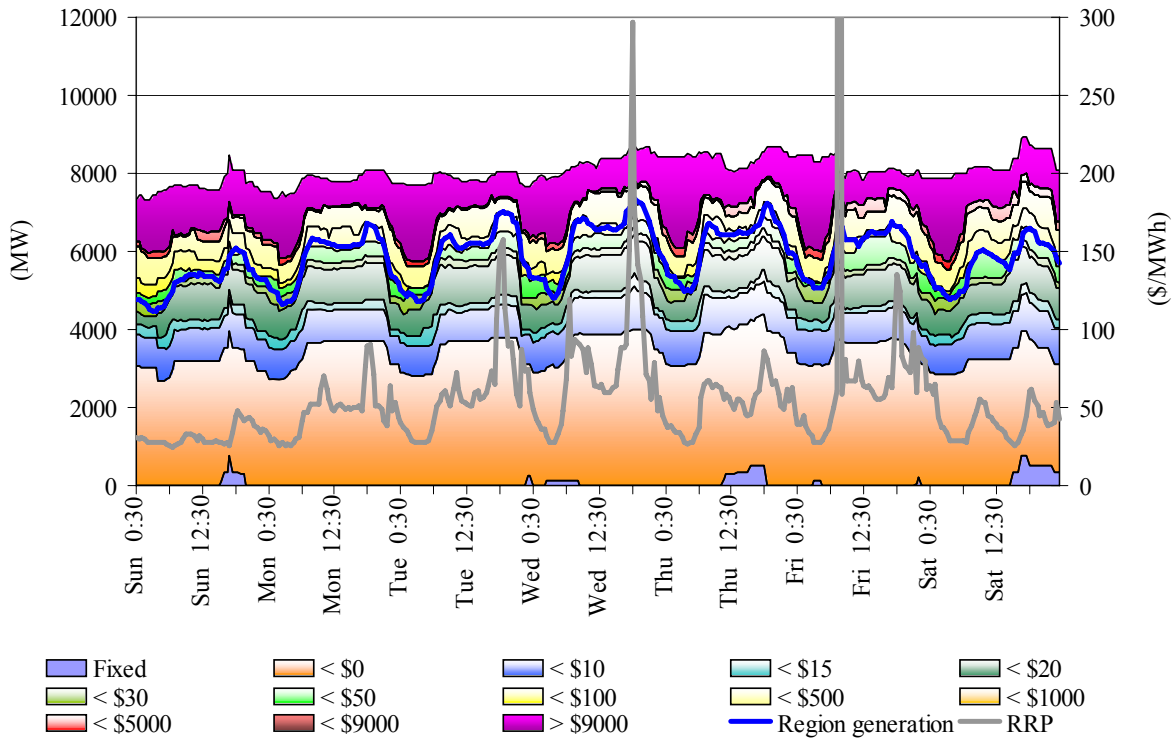


There was one occasion where the spot price in Tasmania was greater than three times the Tasmania weekly average price of \$41/MWh. This occurred when prices were generally aligned across all regions and is detailed in the national market outcomes section.

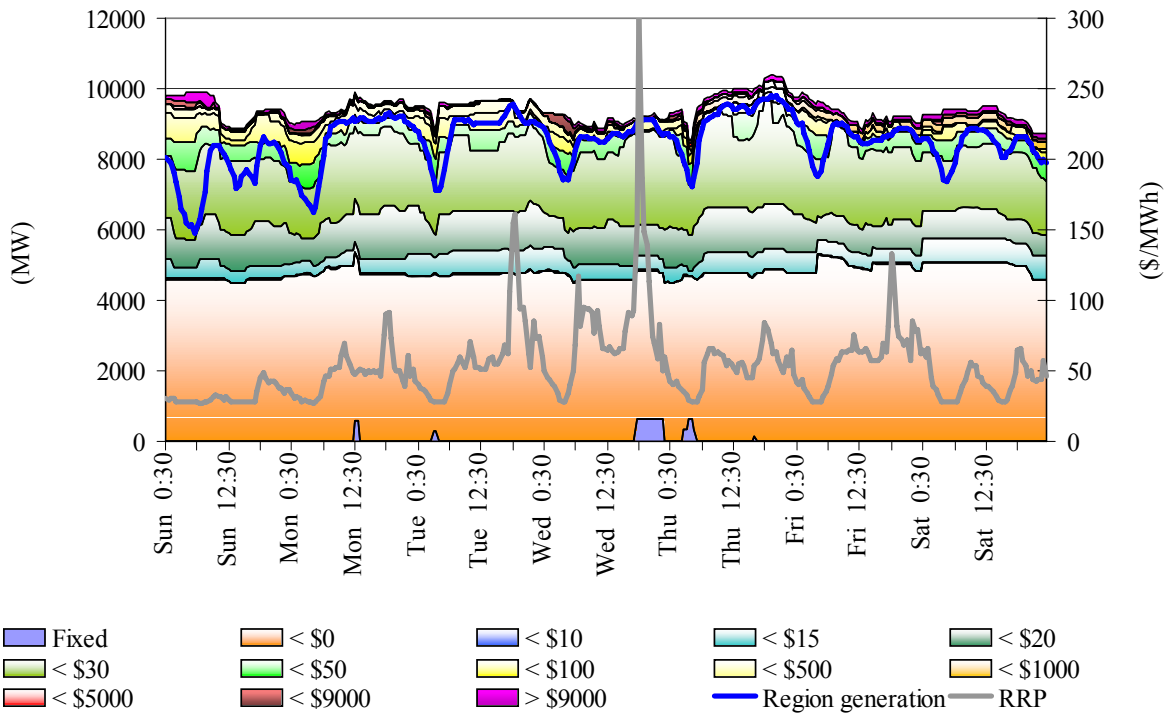
**Bidding patterns**

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**

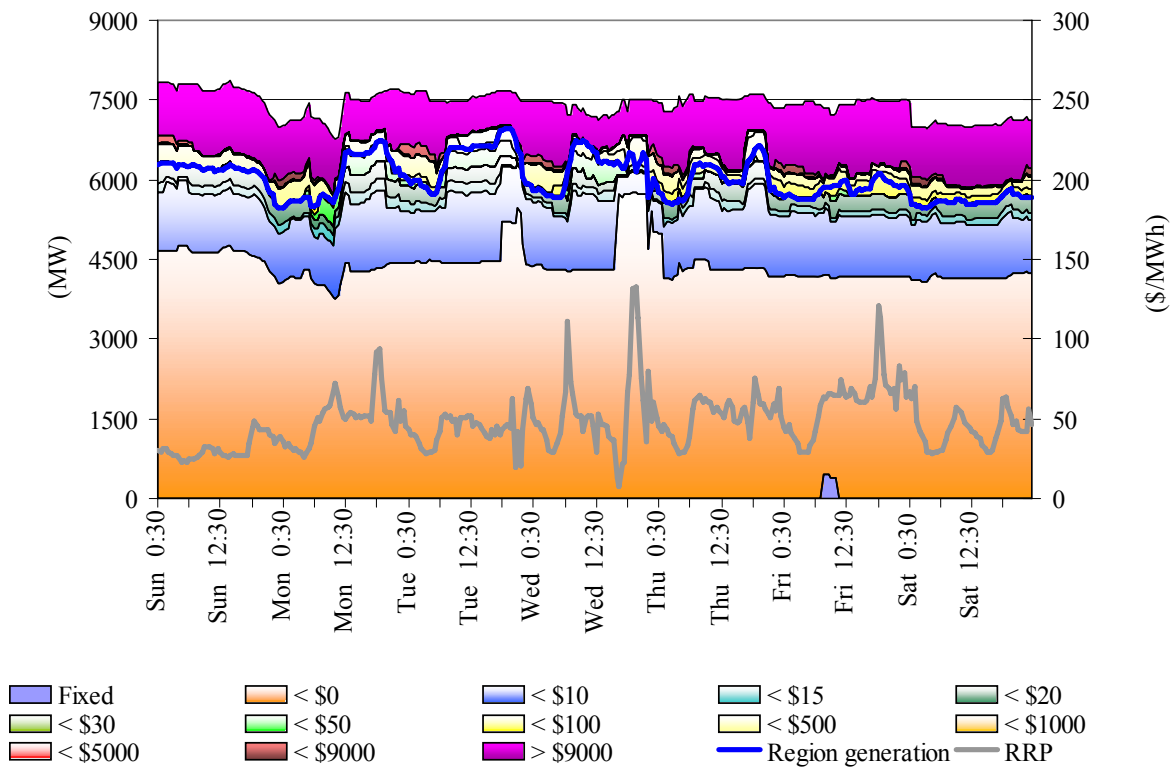


**Figure 58: New South Wales closing bid prices, dispatched generation and spot price**

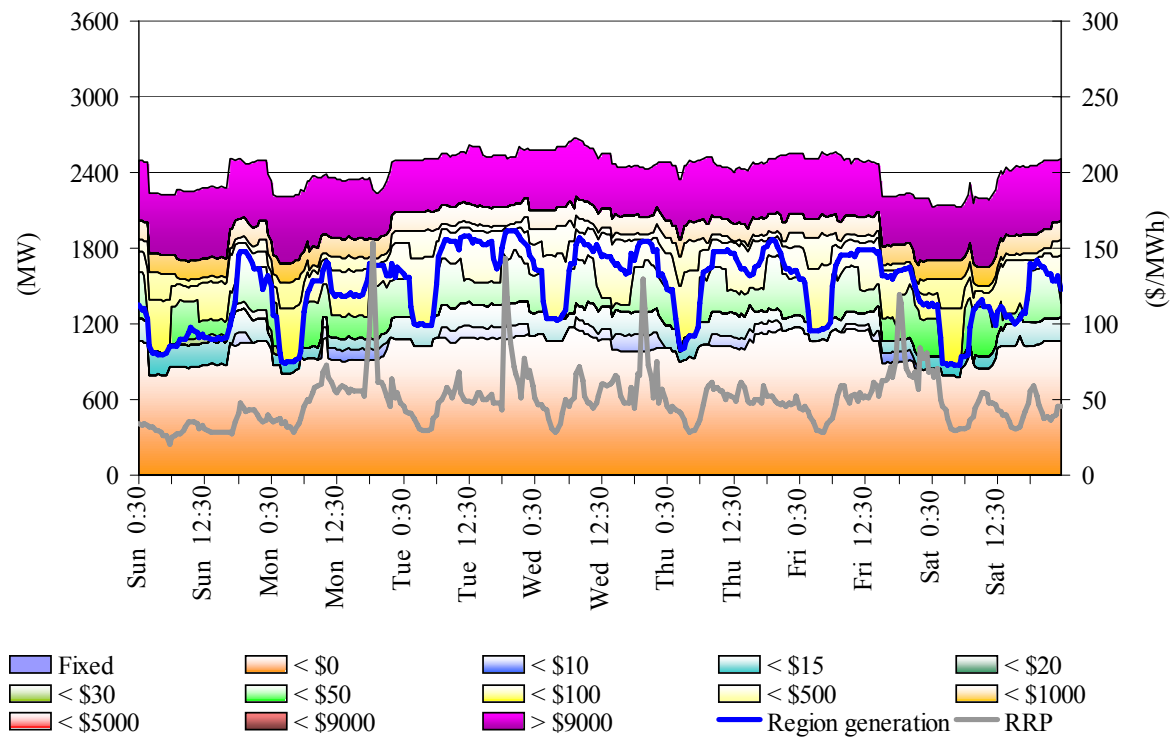




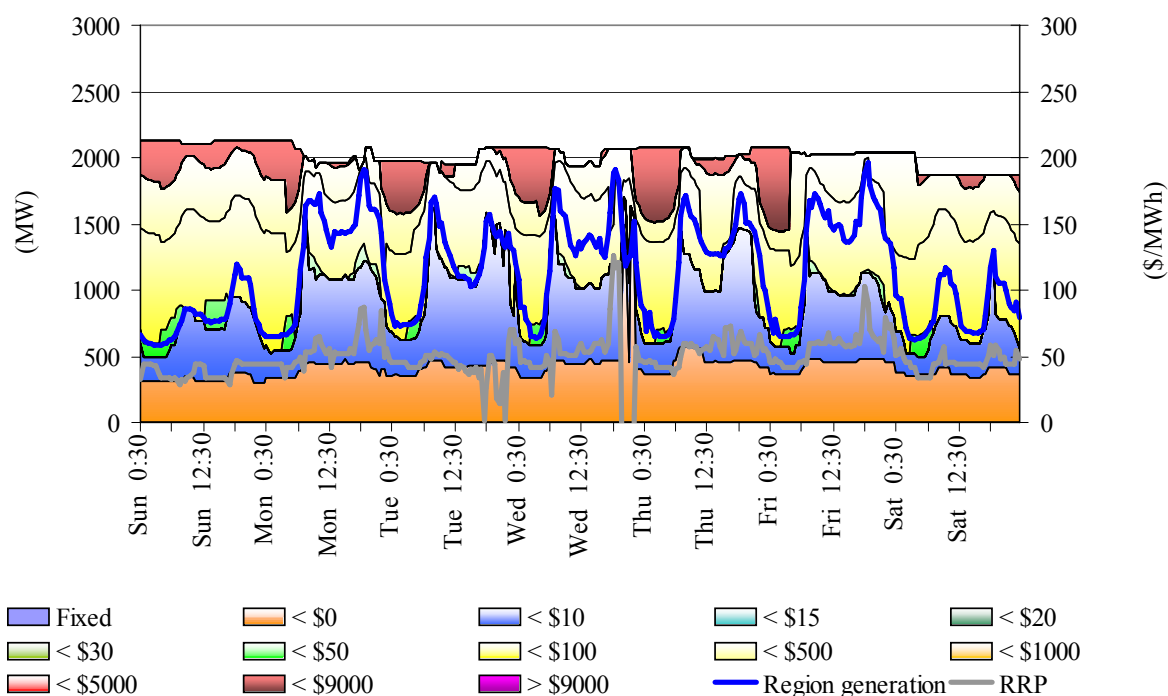
**Figure 59: Victoria closing bid prices, dispatched generation and spot price**



**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 \$432 000 or 0.2 per cent of turnover in 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)	2.57	0.71	1.86	7.94	0.05	0.11	0.43	1.60
Previous week (\$/MW)	3.25	1.12	1.27	5.10	0.05	0.05	0.19	1.57
Last quarter (\$/MW)	1.76	0.73	1.15	1.54	0.39	2.28	5.00	1.93
Market Cost (\$1000s)	\$111	\$26	\$114	\$149	\$0	\$1	\$9	\$22
% of energy market	0.05%	0.01%	0.06%	0.07%	0.01%	0.01%	0.01%	0.01%

The total cost of ancillary services in Tasmania for the week was \$172 000 or 2 per cent of the turnover in the Tasmanian energy market. 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)	6.23	2.27	3.37	4.59	1.29	1.97	1.26	1.21
Previous week (\$/MW)	6.89	2.16	2.15	3.76	1.27	1.72	1.94	1.40
Last quarter (\$/MW)	4.97	0.49	2.93	3.00	12.67	0.43	0.82	0.45
Market Cost (\$1000s)	\$22	\$26	\$26	\$39	\$4	\$31	\$15	\$9
% of energy market	0.25%	0.31%	0.30%	0.45%	0.05%	0.36%	0.18%	0.10%

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

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

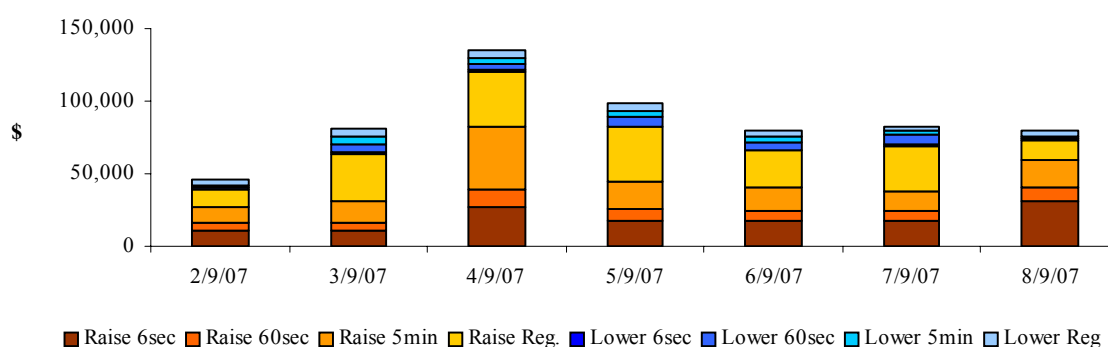
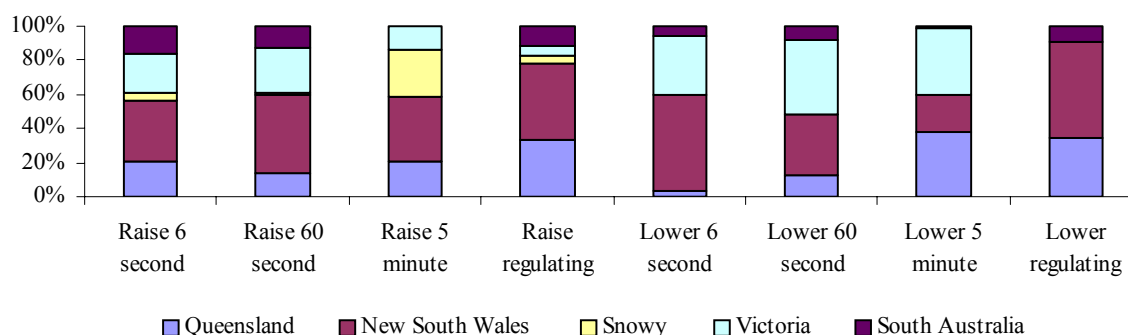


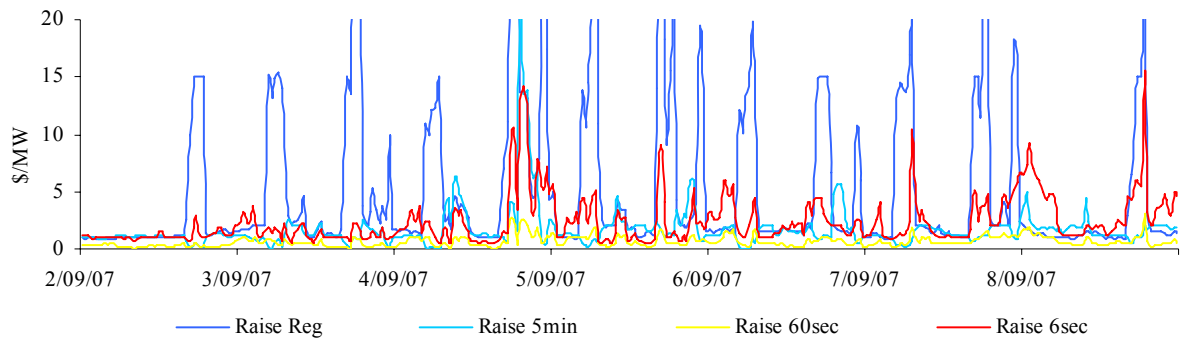
Figure 65 shows the contribution, on a percentage basis, that frequency control ancillary service providers are utilised (in each mainland region) to satisfy the total requirement for each service.

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

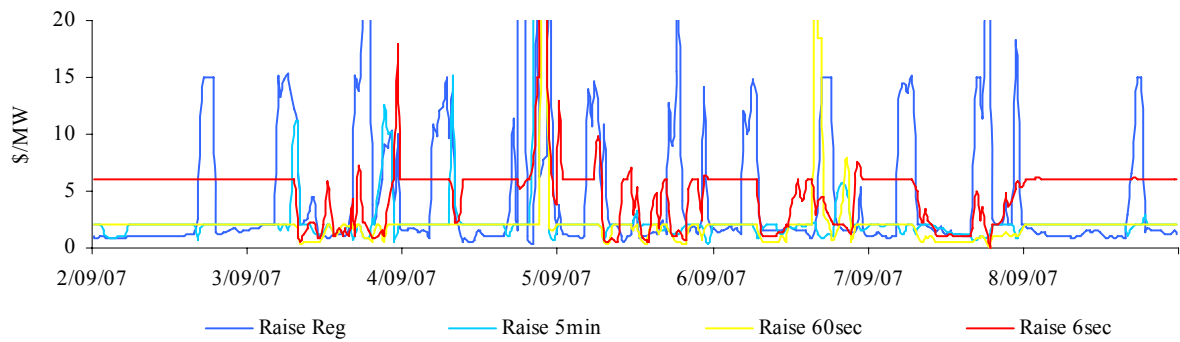


Figures 66 and 67 show 30-minute prices for each frequency control ancillary service throughout the week.

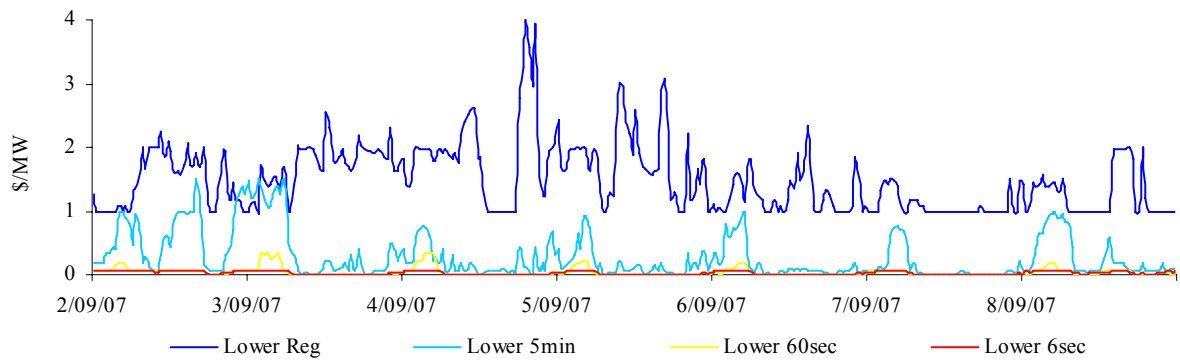
**Figure 66: prices for raise services**



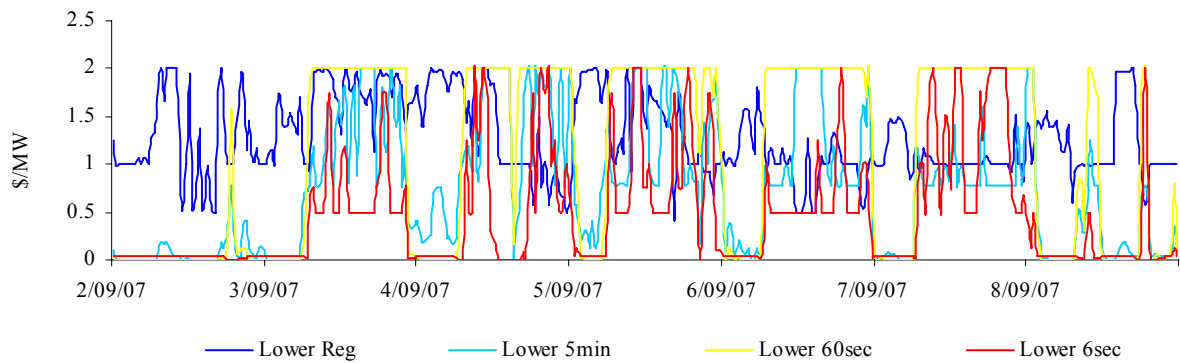
**Figure 66A: prices for raise services – Tasmania**



**Figure 67: prices for lower services**

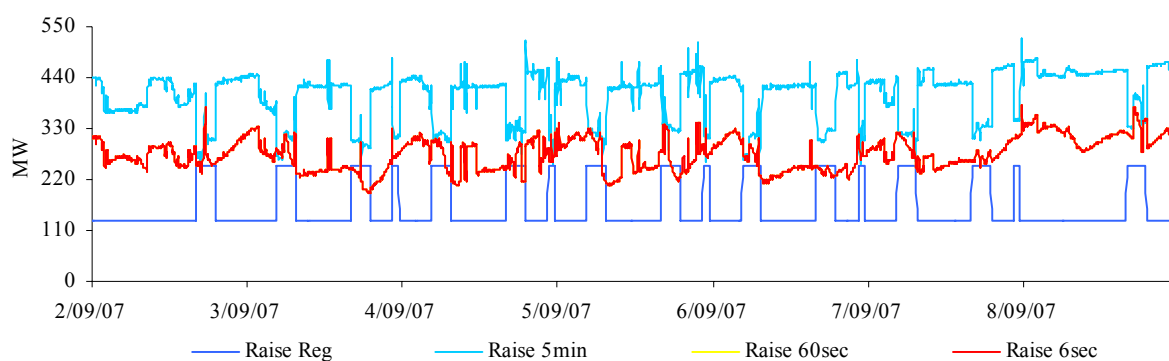


**Figure 67A: prices for lower services – Tasmania**

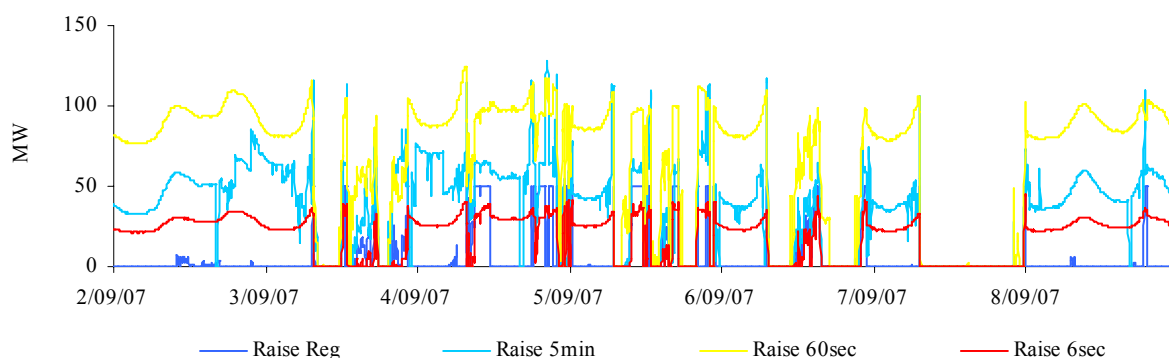


Figures 68 and 69 present for both raise and lower frequency control services the requirement, established by NEMMCO, for each service to satisfy the frequency standard.

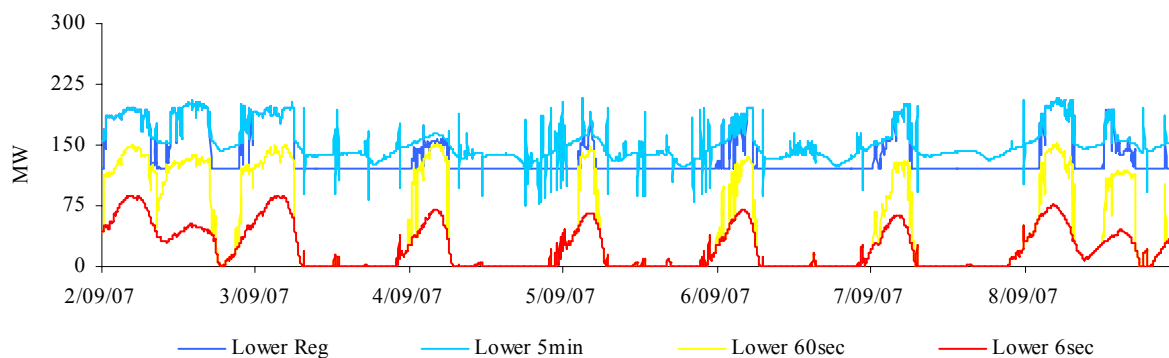
**Figure 68: raise requirements**



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



**Figure 69: lower requirements**



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

