Market analysis

AUSTRALIAN ENERGY REGULATOR

25 JUNE – 1 JULY 2006

Spot prices for the week averaged between $30/MWh in Queensland and $45/MWh in Tasmania. These prices were consistent with the previous week.

The average spot price[1] for the financial year in Queensland was $31/MWh. This represented an increase of 3 percent compared to the previous year. Other average prices were $43/MWh (down 5 per cent) in New South Wales, $36/MWh (up 25 per cent) in Victoria, and $44/MWh (up 12 per cent) in South Australia. The average spot prices in Tasmania, for the first full year of operation in the market, was $59/MWh.

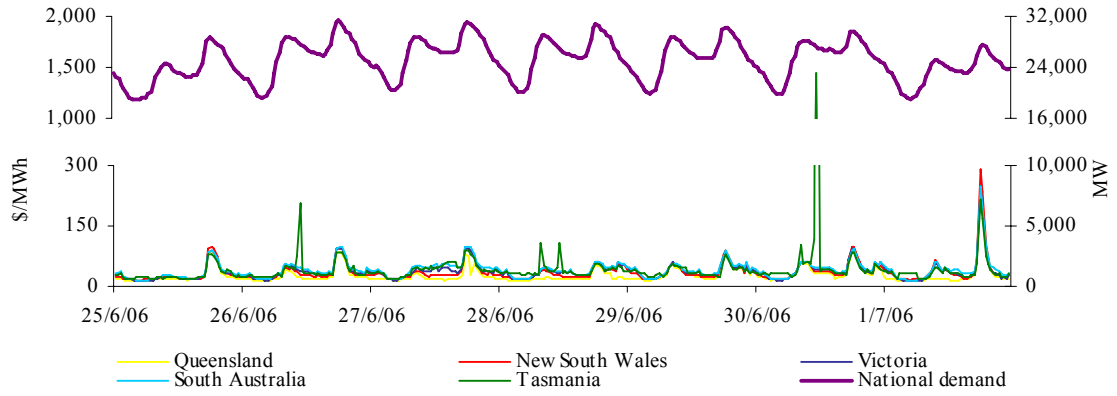
Turnover in the energy market for the week was $154 million. The total cost of ancillary services for the week, including Tasmania, was $340 000, or 0.2 per cent of energy market turnover.

Significant variations between actual prices and those forecast 4 and 12 hours ahead occurred in 67, or a fifth of all trading intervals. Demand forecasts produced 4 and 12 hours ahead varied from actual by more than 5 per cent in 15 per cent of all trading intervals across the market. These variations were most frequenct in South Australia, occurring in around a quarter of all traing 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



[1] Average spot prices are weighted against the demand in each region.

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

	QLD	NSW	VIC	SA	TAS
Last week	30	37	39	43	45
Previous week	28	33	38	44	50
Same quarter last year	23	28	27	36	-
Financial year 2005 - 06	31	43	36	44	59
% change from previous week*	▲7%	▲11%	▲3%	▼1%	▼9%
% change from same quarter last year**	▲29%	▲30%	▲44%	▲21%	-
% change from 2004 - 05***	▲3%	▼5%	▲25%	▲12%	-

*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 2005 – 06 financial year and the average spot price over the previous financial year.

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

Figure 3: Queensland

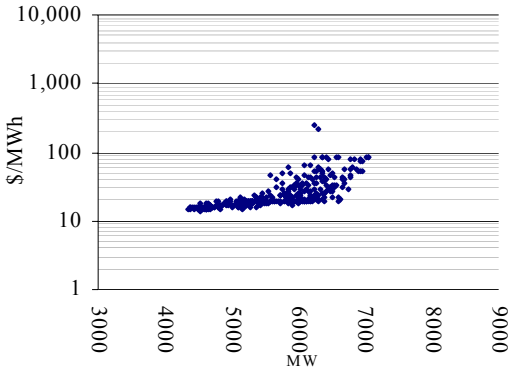


Figure 4: New South Wales

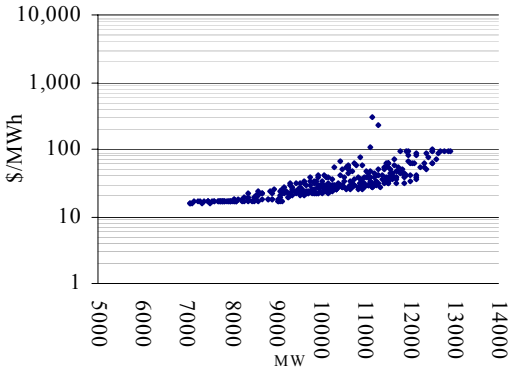


Figure 5: Victoria

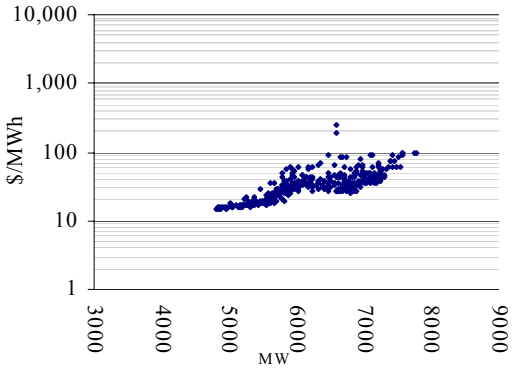


Figure 6: South Australia

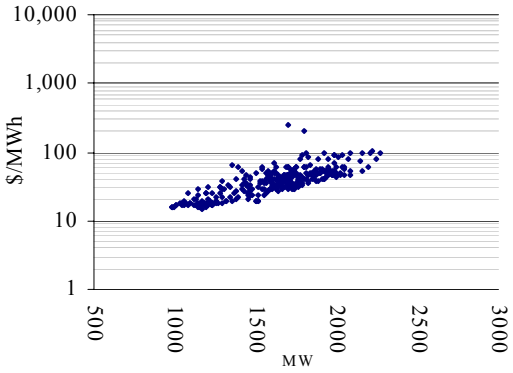
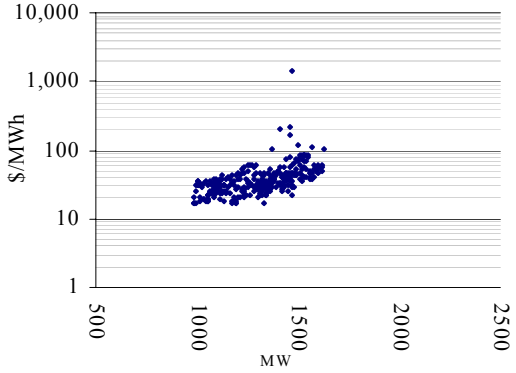


Figure 7: Tasmania



Maximum spot prices for the week were $254/MWh in Queensland, $291/MWh in New South Wales, $243/MWh in Victoria and $250/MWh in South Australia, all occurring on Saturday evening. The spot price reached $1447/MWh in Tasmania, late on Friday morning.

Figure 8: volatility index during peak periods

	QLD	NSW	VIC	SA	TAS
Last week	1.34	1.07	0.78	0.62	0.83
Previous week	1.14	0.95	0.68	0.56	0.82
Same quarter last year	0.73	0.74	0.78	0.70	-

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

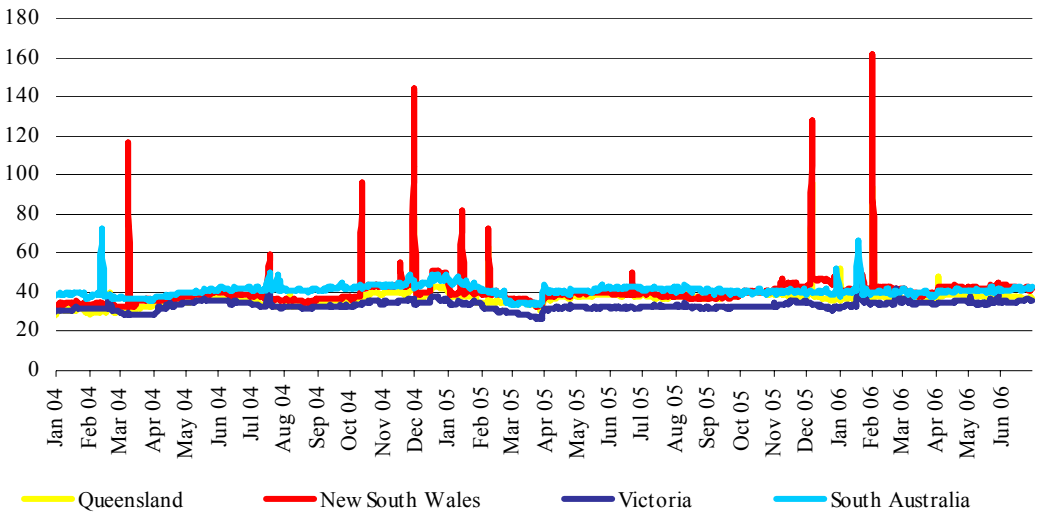
Figure 9 sets out the d-cyphaTrade wholesale electricity price index (WEPI)* for each region throughout the week excluding Tasmania. Figure 10 sets out the WEPI since 1 January 2004.

Figure 9: d-cyphaTrade WEPI for the week

	Monday	Tuesday	Wednesday	Thursday	Friday
Queensland	36.96	36.97	36.88	37.47	37.16
New South Wales	42.65	41.52	41.40	41.43	42.15
Victoria	36.38	36.77	36.24	36.27	36.07
South Australia	41.67	42.78	41.71	42.37	43.06

* A 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

Figure 10: d-cyphaTrade WEPI



Reserve

There were no low reserve conditions forecast.

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

Figure 11: Queensland

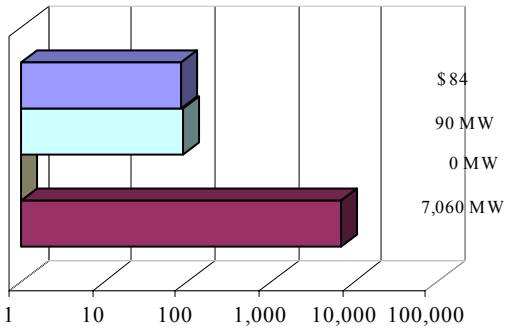


Figure 12: New South Wales

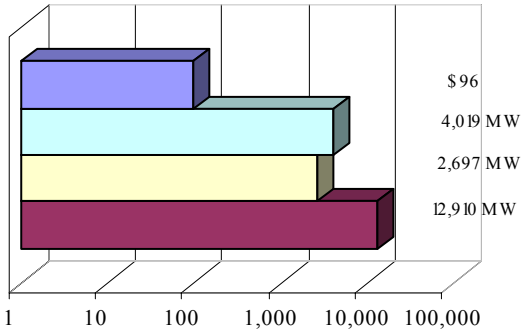


Figure 13: Victoria

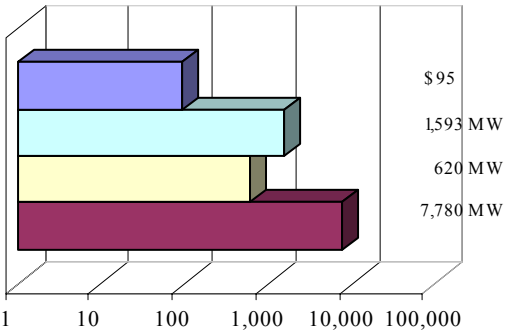


Figure 14: South Australia

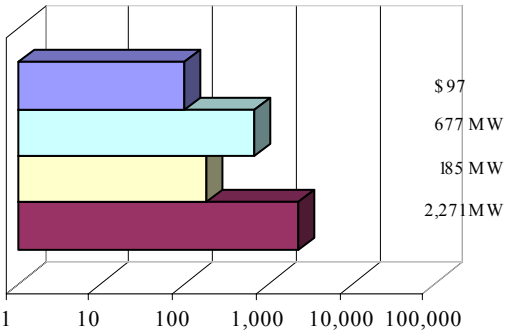
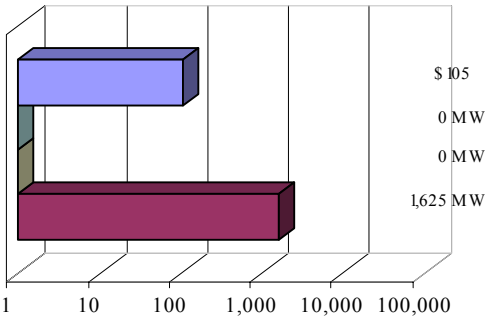


Figure 15: Tasmania



Price variations

There were 67 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

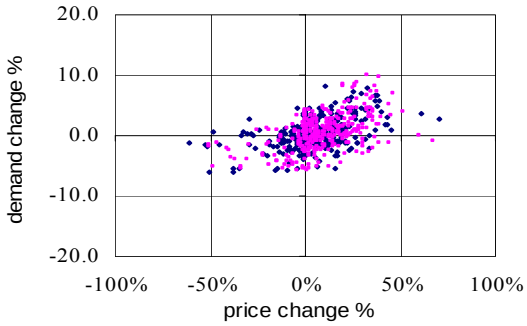


Figure 18: Victoria

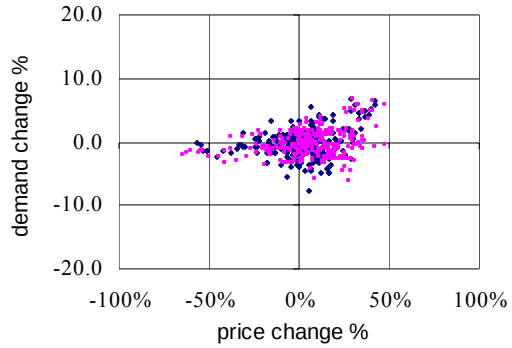


Figure 19: South Australia

Figure 20: Tasmania

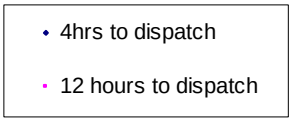
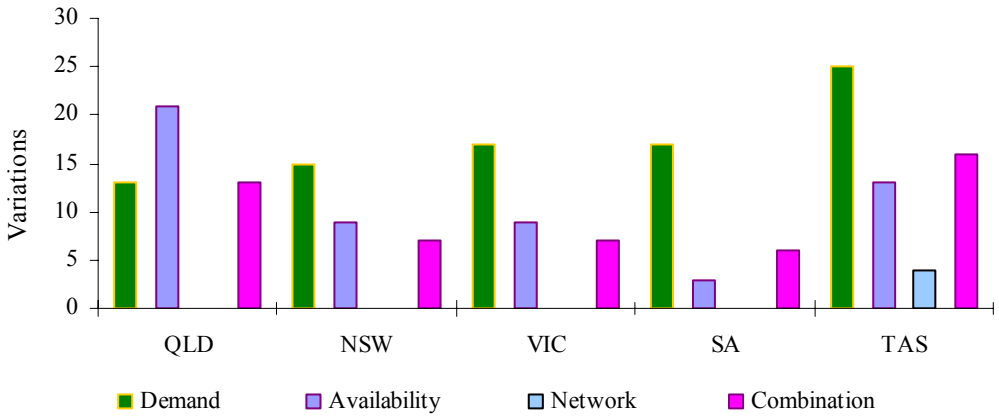


Figure 21 summarises the number and most probable reason for variations between forecast and actual prices.

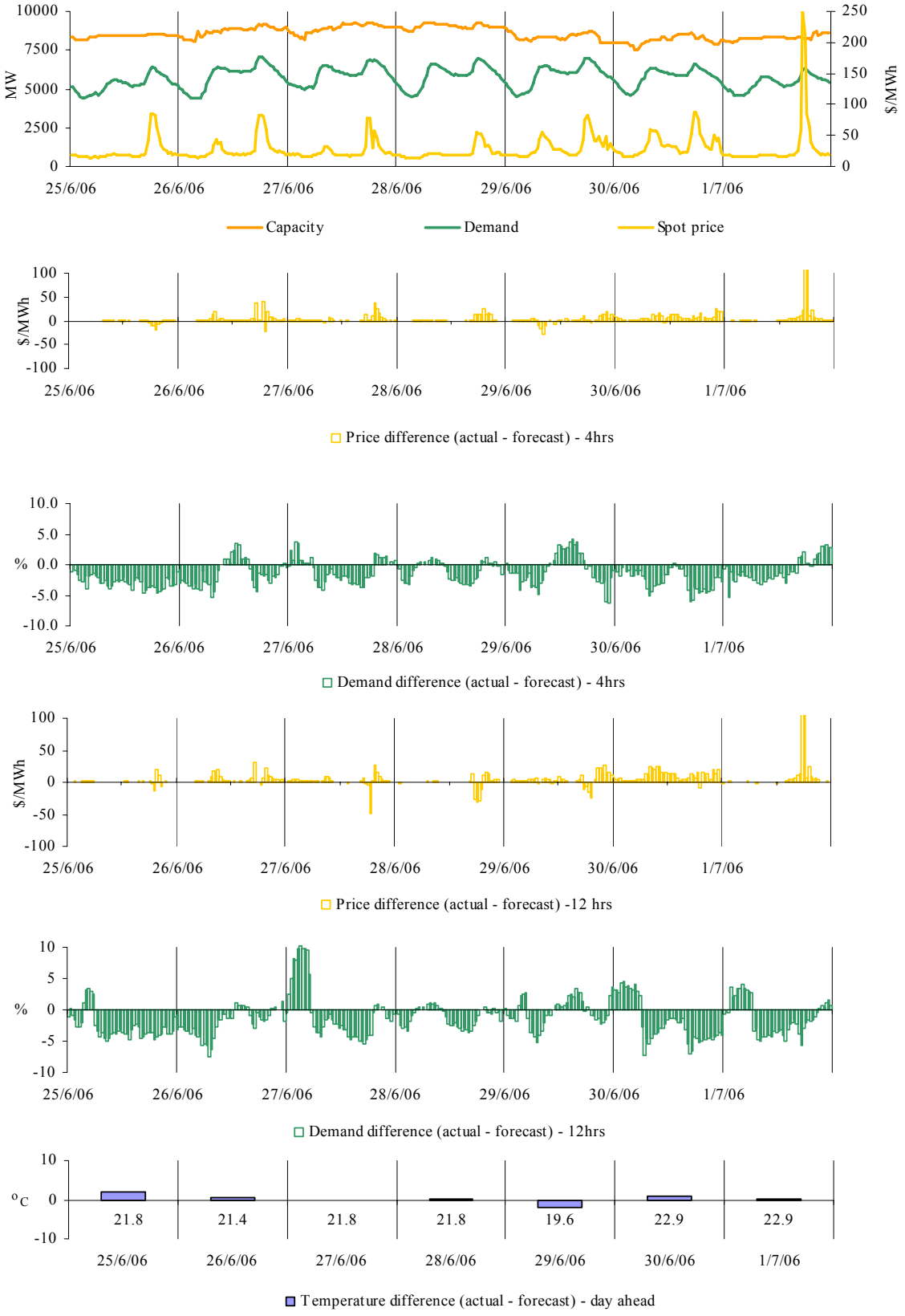
Figure 21: reasons for variations between forecast and actual prices



Price and demand

Figures 22 – 51 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 52 – 56 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 22-27: Queensland actual spot price, demand and forecast differences



There were two occasions where the spot price in Queensland was greater than three times the weekly average price of $30/MWh.

Saturday, 1 July

6:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	253.80	76.14	80.13
Demand (MW)	6244	6108	6425
Available capacity (MW)	8285	8665	8745
6:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	209.54	80.13	80.51
Demand (MW)	6286	6284	6416
Available capacity (MW)	8259	8667	8742

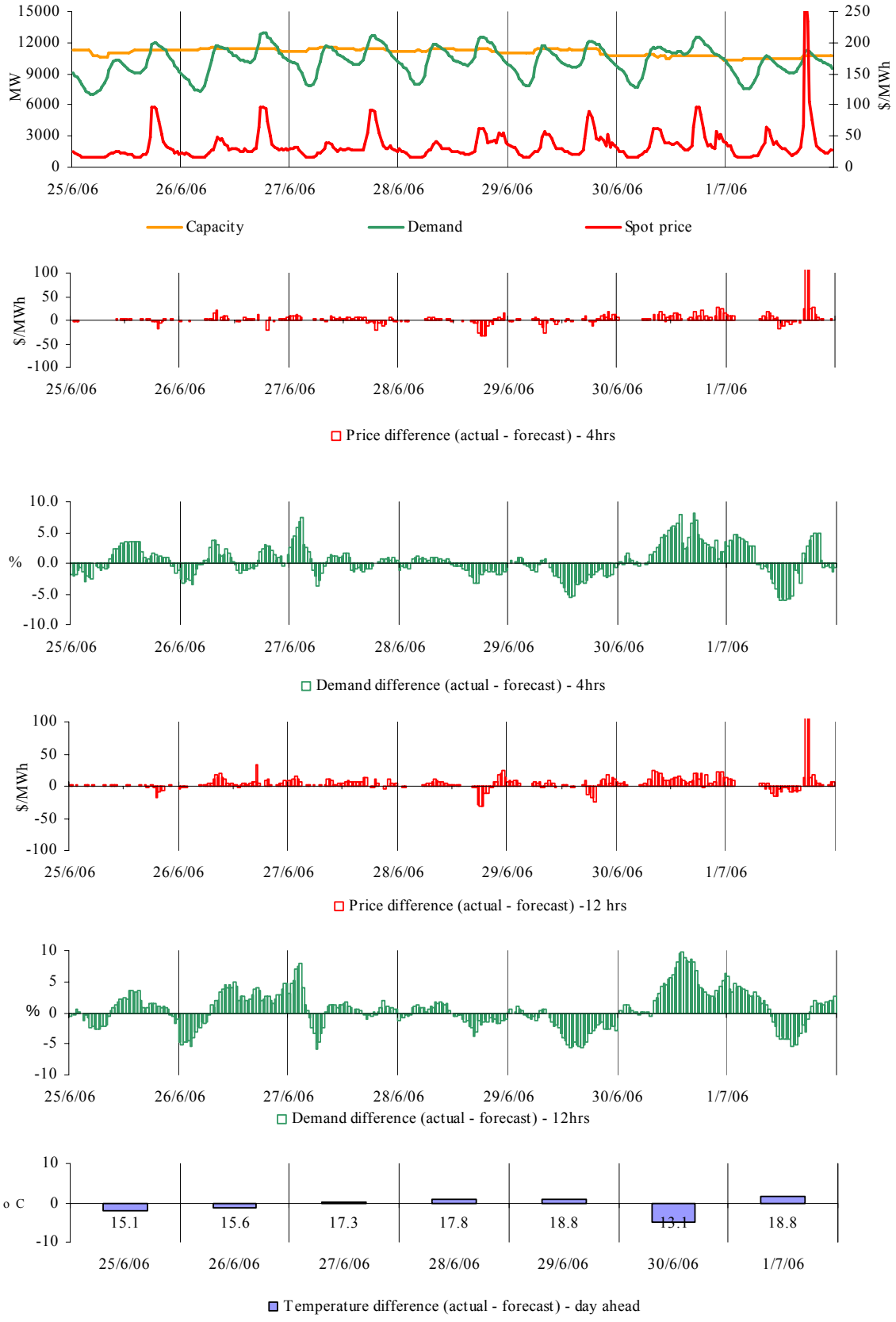
Conditions at the time saw demand in Queensland and across the market close to forecast, with available capacity 400 MW lower than forecast. Prices were higher than forecast and aligned across the market.

Delays in the return to service of Millmeran's unit two following a two day unplanned outage, saw a reduction by 435 MW in available capacity at 2.21 pm for the evening peak. All of this capacity was priced at less than $10/MWh. The rebid reason given was "Changed plant conditions".

Over a number of rebids from 5.25 pm, Tarong Energy shifted 230 MW of capacity at Wivenhoe from prices of $40/MWh and $79/MWh to prices above $9000/MWh. The rebid reasons given included: "Change in mkt conditions::optimise portfolio" and "Change in PDS::Adjust profile".

There was no other significant rebidding.

Figures 28-33 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 weekly average price of $37/MWh.

Saturday, 1 July

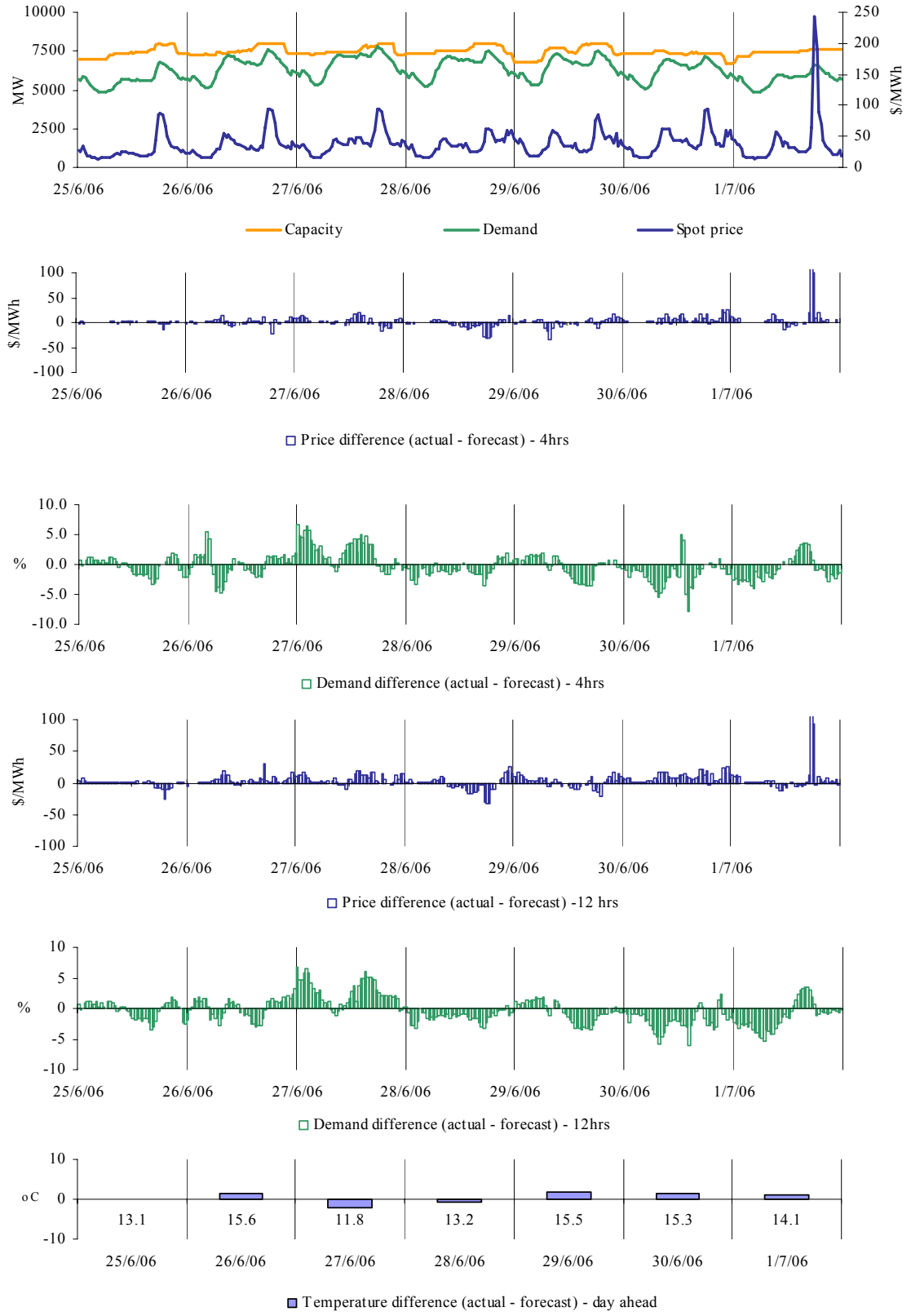
6:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	291.23	86.00	93.92
Demand (MW)	11166	10861	11280
Available capacity (MW)	10733	10733	10733
6:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	233.66	90.29	93.95
Demand (MW)	11301	10892	11297
Available capacity (MW)	10733	10733	10733

Conditions at the time saw demand in New South Wales as much as 500 MW higher than forecast four hours ahead. Nationally, demand across the market was close to forecast. Prices were higher than forecast and aligned across the market.

At 4.57 pm, Macquarie Generation shifted 1130 MW of capacity across their portfolio from prices of less than $200/MWh to above $9000/MWh, 840 MW of this capacity had been priced at less than $50/MWh. The rebid reason given was “Sensitivities have changed”.

There was no other significant rebidding.

Figures 34-39: Victoria actual spot price, demand and forecast differences



There were two occasions where the spot price in Victoria was greater than three times the weekly average price of $39/MWh.

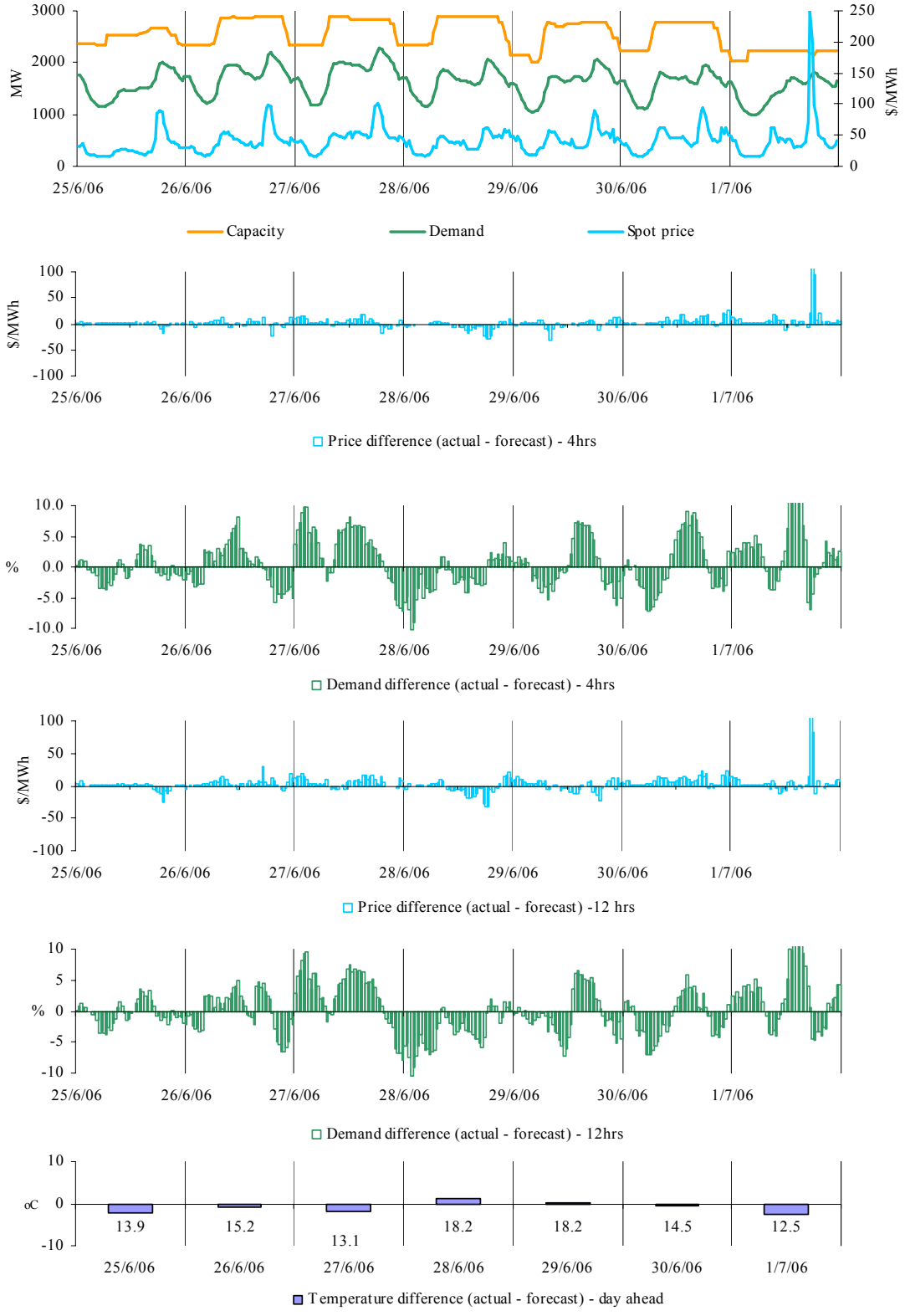
Saturday, 1 July

6:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	242.98	84.84	93.58
Demand (MW)	6602	6548	6562
Available capacity (MW)	7606	7583	7423
6:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	189.29	90.16	95.00
Demand (MW)	6586	6653	6661
Available capacity (MW)	7618	7633	7403

Conditions at the time saw demand in Victoria and across the market close to forecast. Prices were higher than forecast and aligned across the market.

There was no significant rebidding.

Figures 40-45: South Australia actual spot price, demand and forecast differences



There were two occasions where the spot price in South Australia was greater than three times the weekly average price of $43/MWh.

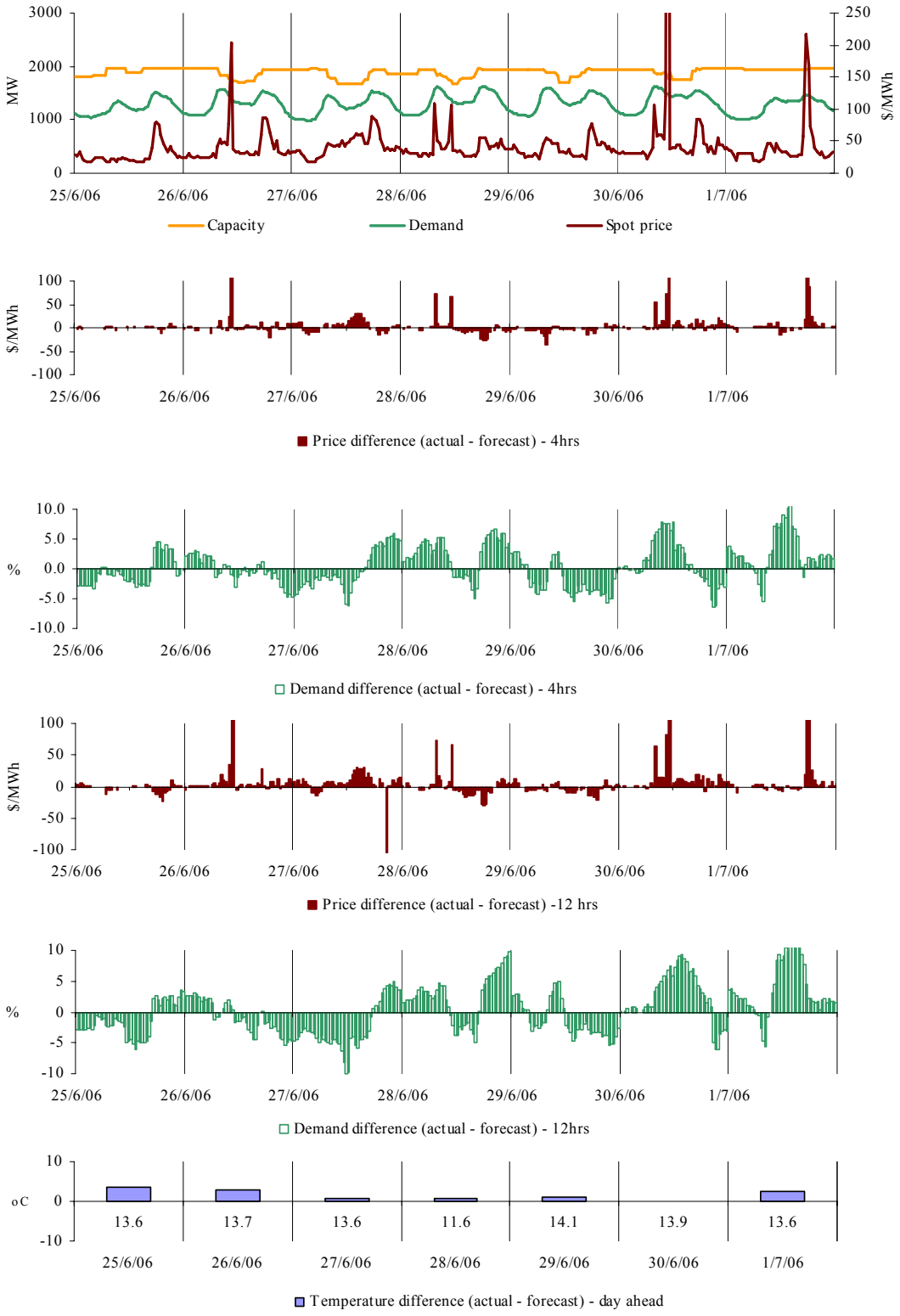
Saturday, 1 July

6:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	250.36	94.36	106.33
Demand (MW)	1703	1781	1779
Available capacity (MW)	2188	2220	2218
6:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	196.36	102.44	113.02
Demand (MW)	1801	1832	1884
Available capacity (MW)	2172	2220	2218

Conditions at the time saw demand in South Australia and across the market close to forecast. Prices were higher than forecast and aligned across the market.

There was no significant rebidding.

Figures 46-51: Tasmania actual spot price, demand and forecast differences



There were four occasions where the spot price in Tasmania was greater than three times the weekly average price of $45/MWh.

Monday, 26 June

11:00 am	Actual	4 hr forecast	12 hr forecast
Price ($/MWh)	204.31	43.43	41.09
Demand (MW)	1413	1430	1409
Available capacity (MW)	1784	1722	1722

Conditions at the time saw demand close to forecast. Prices were higher than forecast with BassLink flowing north, counter price into Victoria at 10.35 am and 10.40 am.

At 10.35 am, the price of energy spiked to $842/MWh, coinciding with a step change in Hydro Tasmania's offer profile, leading to a 218 MW reduction in capacity priced below $50/MWh. This step change was as part of Hydro Tasmania's day-ahead bids and was not a result of a rebid. Flows north across BassLink were kept at 73 MW as a result of co-optimisation between the energy market and six frequency markets, with the price of locally sourced raise regulation reaching $635/MWh.

At 10.28 am, effective at 10.40 am, Hydro Tasmania shifted capacity across most frequency markets at Reece and Tribute from prices above $2000/MWh to below $80/MWh. The rebid reason given was "FCAS Energy co-optimisation". Flows were held north on the boundary of the no-go zone at 50 MW for this five-minute dispatch interval. Prices remained higher than forecast at $212/MWh.

By 10.45 am, BassLink had changed direction and was flowing south at 86 MW. Prices were inline with forecasts at $54/MWh.

There was no significant rebidding.

Friday, 30 June

11:30 am	Actual	4 hr forecast	12 hr forecast
Price ($/MWh)	1447.22	36.80	36.17
Demand (MW)	1474	1362	1366
Available capacity (MW)	1768	1745	1760

Conditions at the time saw demand 100 MW higher than forecast four hours ahead.

Flows across BassLink had been counter price since 10.35 am, as a combined result of: a step change in the offer profile of Hydro Tasmania's capacity; a network limitation in Tasmania; and the co-optimisation of energy with five frequency control ancillary services.

At 11.15 am, the price in Tasmania spiked from $250/MWh to $8000/MWh. This followed a small increase in demand and locally sourced raise frequency services. There was no energy offers available in Tasmania priced between $250/MWh and $8000/MWh.

There was no significant rebidding.

Saturday, 1 July

6:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	217.29	76.53	46.26
Demand (MW)	1461	1452	1429
Available capacity (MW)	1950	1946	1946
6:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	168.37	81.12	46.42
Demand (MW)	1460	1434	1430
Available capacity (MW)	1967	1946	1946

Conditions at the time saw demand in Tasmania and across the market close to forecast. Prices were higher than forecast and aligned across the market.

There was no significant rebidding.

Figure 52: Queensland closing bid prices, dispatched generation and spot price

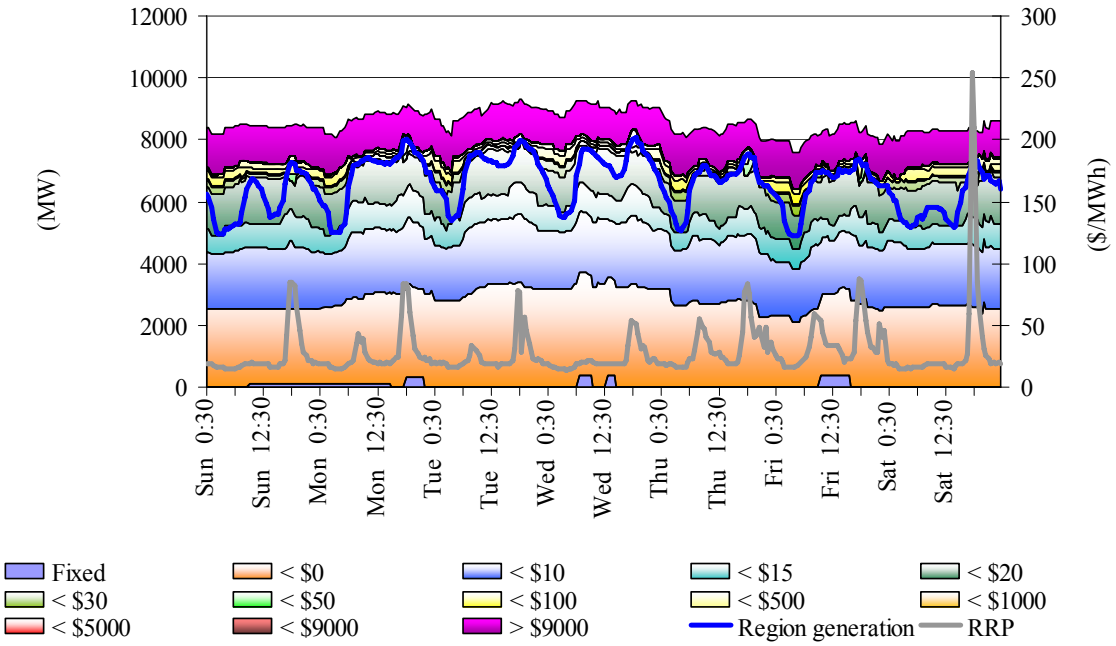


Figure 53: New South Wales closing bid prices, dispatched generation and spot price

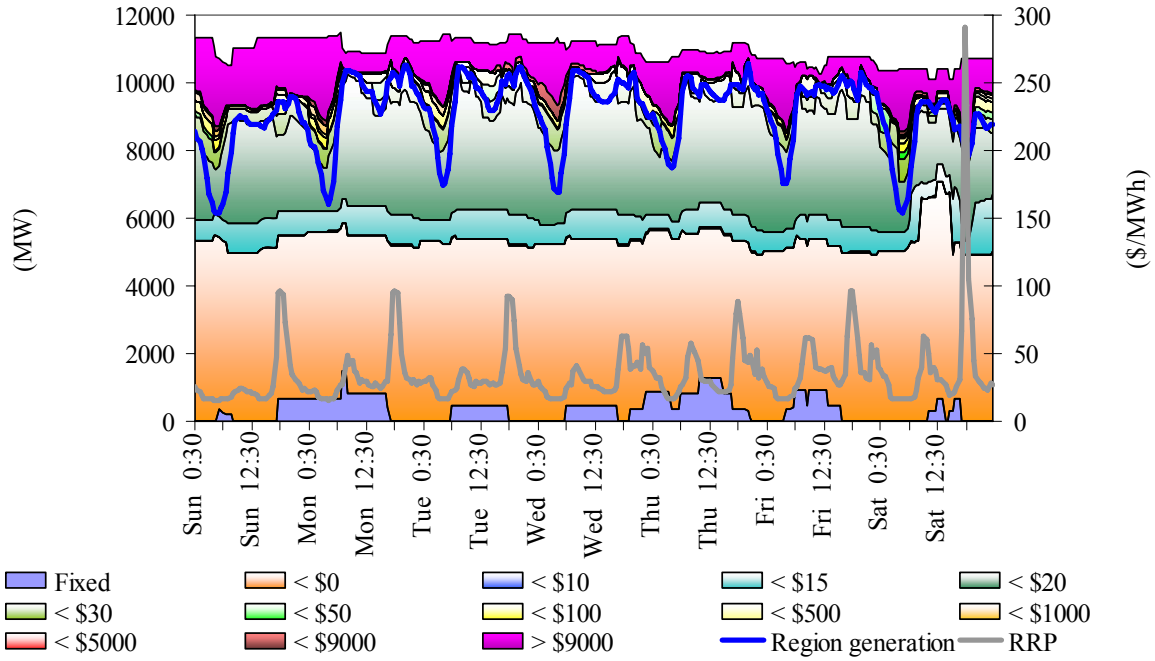


Figure 54: Victoria closing bid prices, dispatched generation and spot price

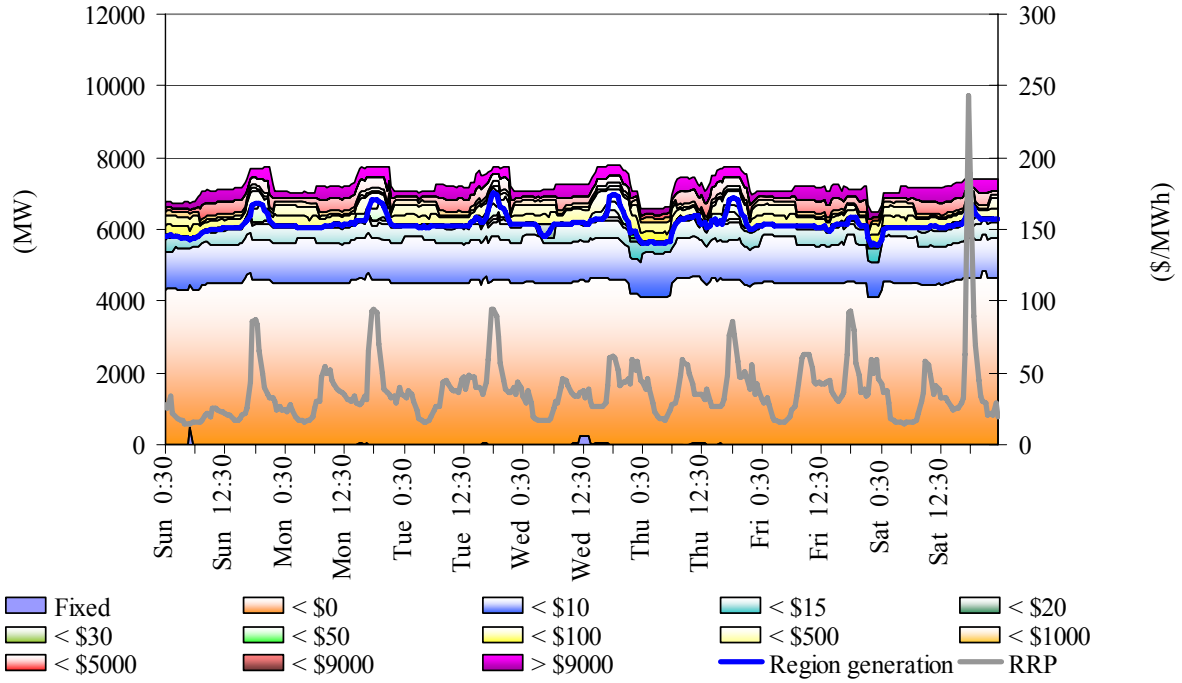


Figure 55: South Australia closing bid prices, dispatched generation and spot price

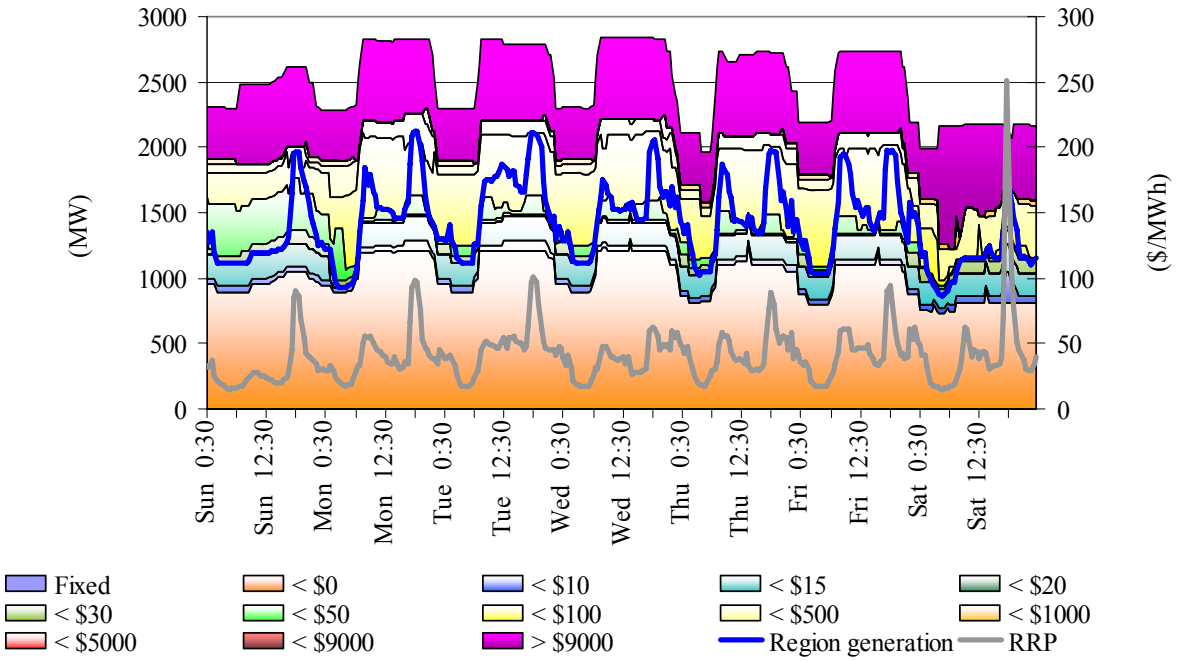
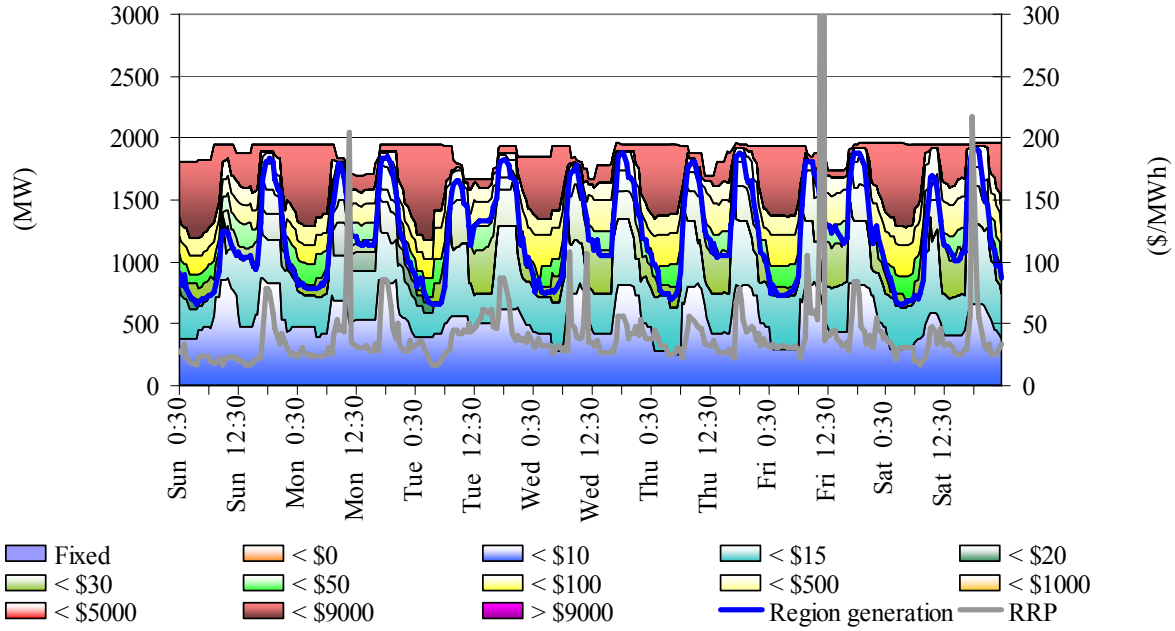


Figure 56: Tasmania closing bid prices, dispatched generation and spot price



Ancillary service market

The total cost of ancillary services on the mainland for the week was $175 000 or 0.1 per cent of the total turnover in the energy market. Figure 57 summarises the volume weighted average prices and costs for the eight frequency control ancillary services across the mainland.

Figure 57: 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 ($/MW)	0.70	0.13	0.96	2.33	0.15	1.02	1.07	0.87
Previous week ($/MW)	0.49	0.11	0.69	0.65	0.14	0.04	0.19	0.90
Last quarter ($/MW)	1.76	0.73	1.15	1.54	0.39	2.28	5.00	1.93
Market Cost ($1000s)	27	4	54	51	0.4	5	19	13
% of energy market	0.02%	0.01%	0.04%	0.04%	0.01%	0.01%	0.01%	0.01%

The total cost of ancillary services in Tasmania for the week was $165 000 or 1.7 per cent of the total turnover in the energy market in Tasmania. Figure 58 summarises for Tasmania the prices and costs for the eight frequency control ancillary services.

Figure 58: 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 ($/MW)	2.19	0.30	2.01	2.24	27.83	0.16	0.40	0.83
Previous week ($/MW)	19.77	0.16	0.99	23.66	18.12	0.07	0.40	0.82
Last quarter ($/MW)	7.89	1.05	1.05	1.58	4.43	1.06	1.06	1.97
Market Cost ($1000s)	9	3	27	7	106	3	7	5
% of energy market	0.09%	0.03%	0.28%	0.07%	1.08%	0.03%	0.07%	0.05%

Figure 59 shows the daily breakdown of cost for each frequency control ancillary service.

Figure 59: daily frequency control ancillary service costs

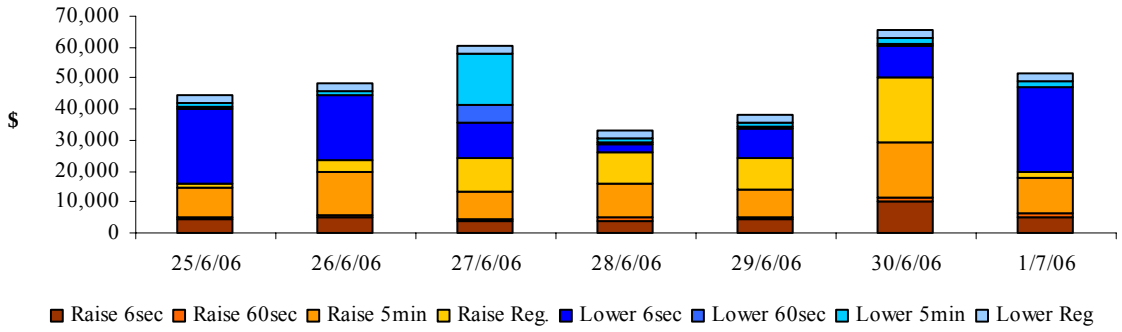
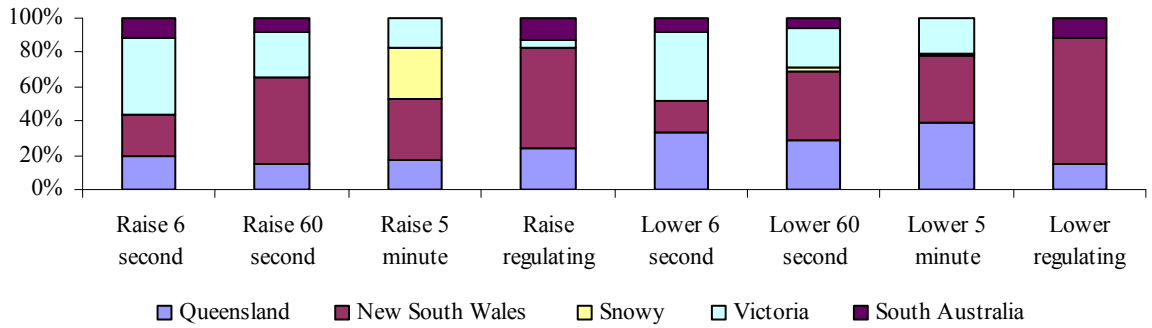


Figure 60 shows the contribution, on a percentage basis, that frequency control ancillary service providers are utilised (in each mainland region) to satisfy the total requirement for each service.

Figure 60: regional participation in ancillary services on the mainland



Figures 61 and 62 show 30-minute prices for each frequency control ancillary service throughout the week.

Figure 61: prices for raise services

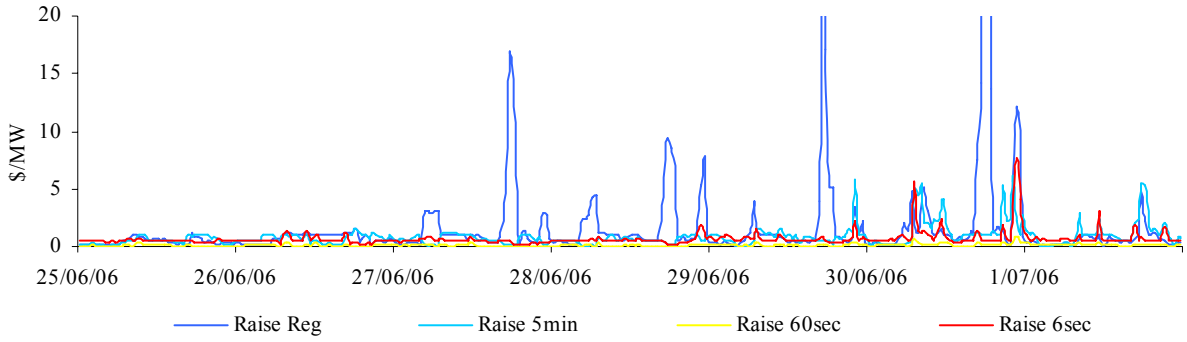


Figure 61A: prices for raise services - Tasmania

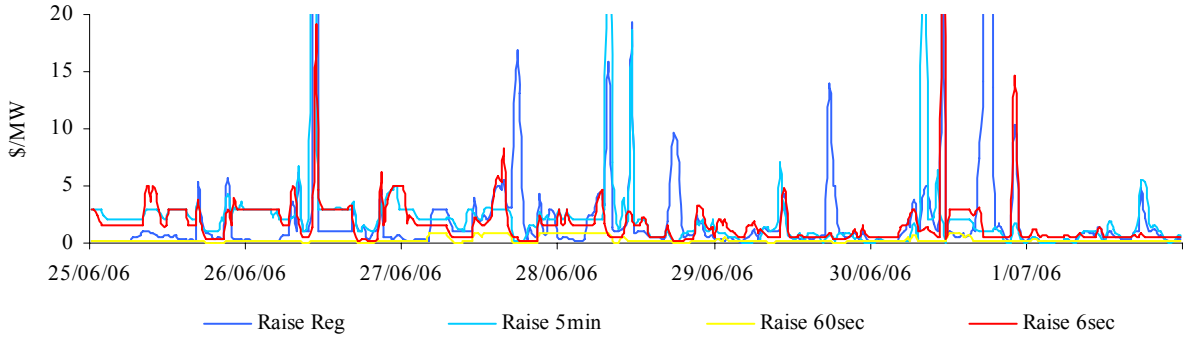


Figure 62: prices for lower services

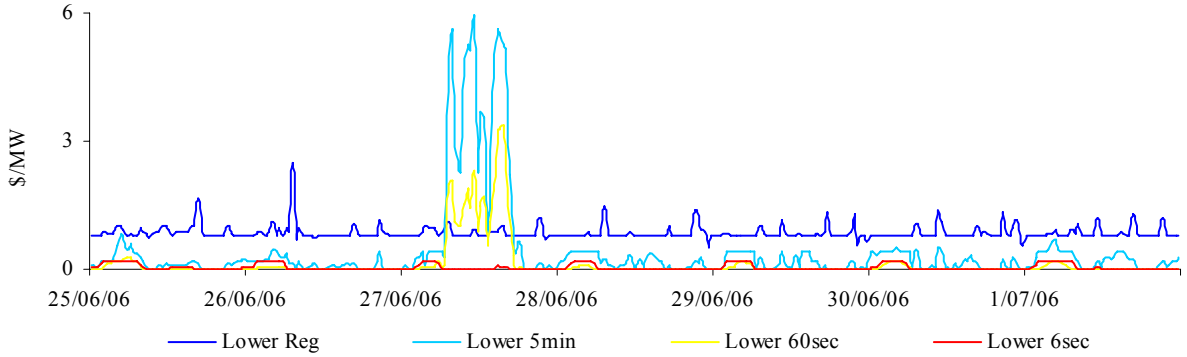
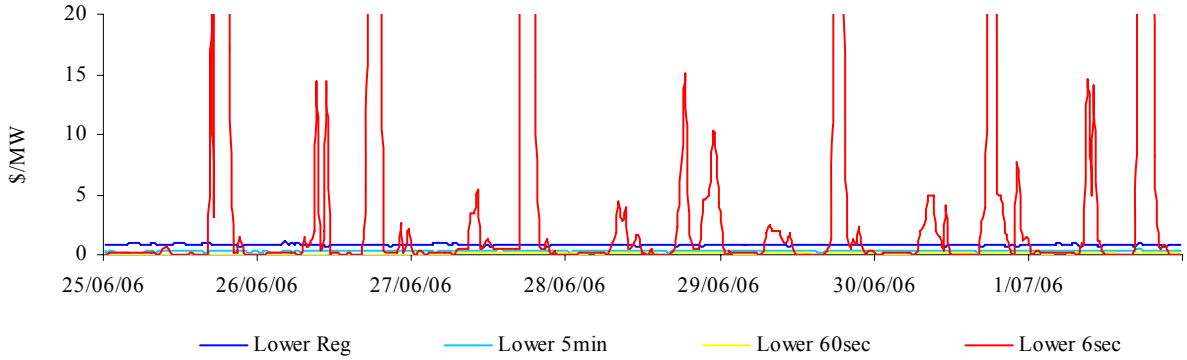


Figure 62A: prices for lower services – Tasmania



Figures 63 and 64 present for both raise and lower frequency control services the requirement, established by NEMMCO, for each service to satisfy the frequency standard.

Figure 63: raise requirements

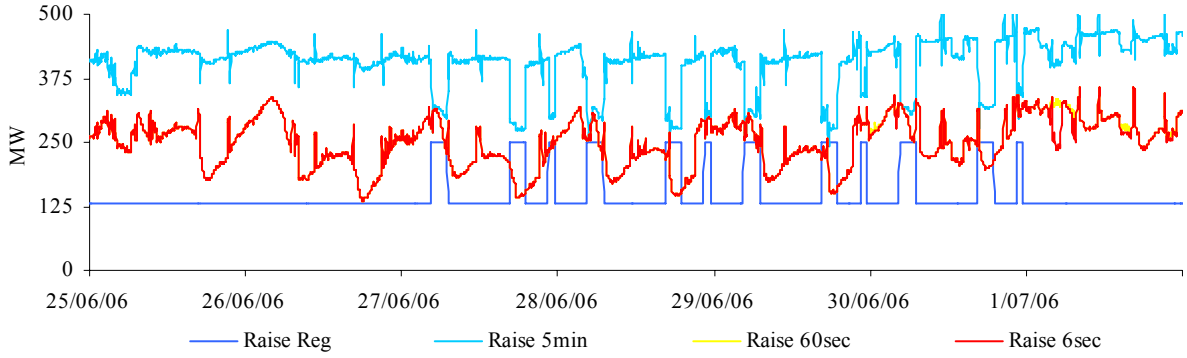


Figure 63A: raise requirements - Tasmania

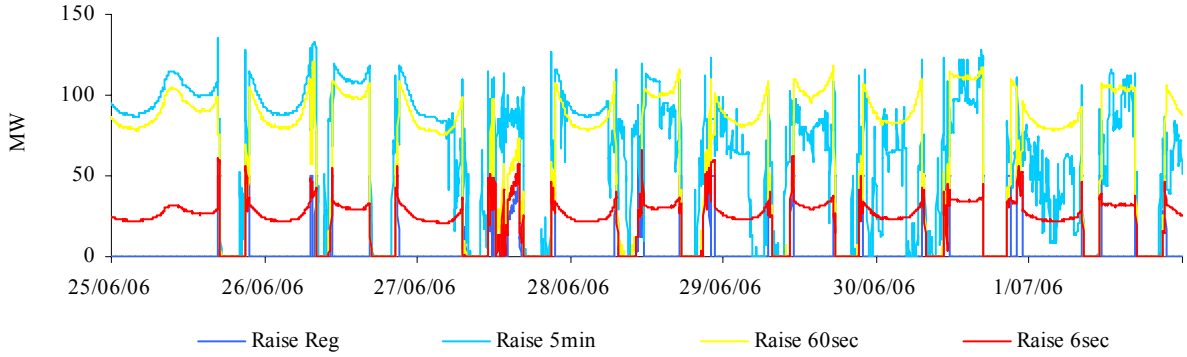


Figure 64: lower requirements

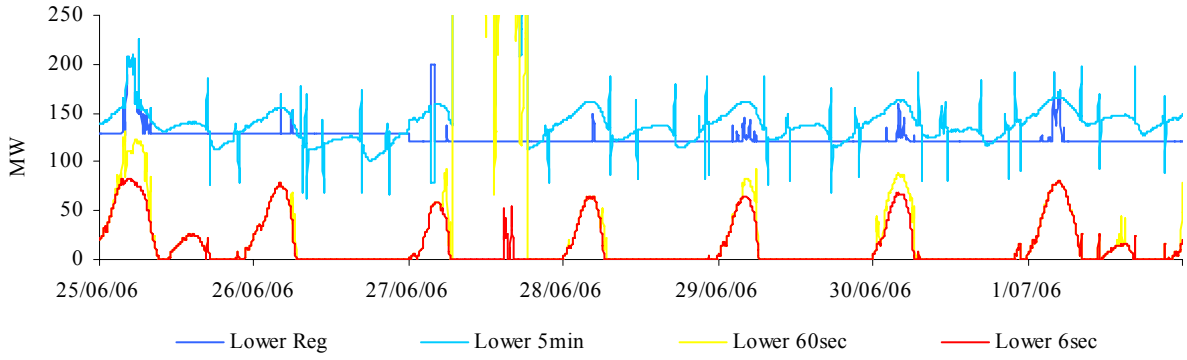
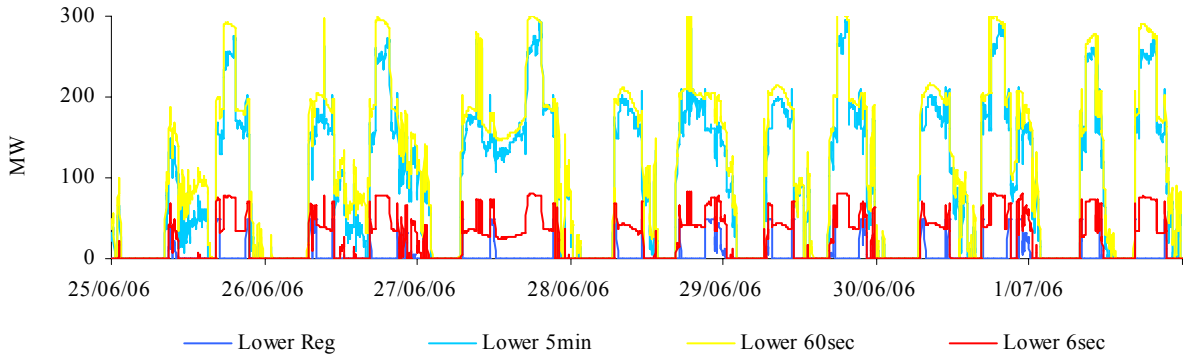


Figure 64A: lower requirements - Tasmania



Australian Energy Regulator
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