

Market analysis



AUSTRALIAN ENERGY
REGULATOR

8 – 14 OCTOBER 2006

Spot prices for the week averaged between \$23/MWh in Queensland and \$34/MWh in South Australia and Tasmania. Extreme temperatures on Thursday across Victoria and South Australia saw the combined demand 1100 MW higher than the previous October record, and Victorian demand within 800 MW of the all-time record. The spot price on the day peaked at \$137/MWh in South Australia.

Turnover in the energy market was \$113 million. The total cost of ancillary services for the week was \$247 000, or 0.2 per cent of energy market turnover.

Significant variations between actual prices and those forecast 4 and 12 hours ahead occurred in 80, or quarter 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 frequent in South Australia, occurring in around a third of all 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

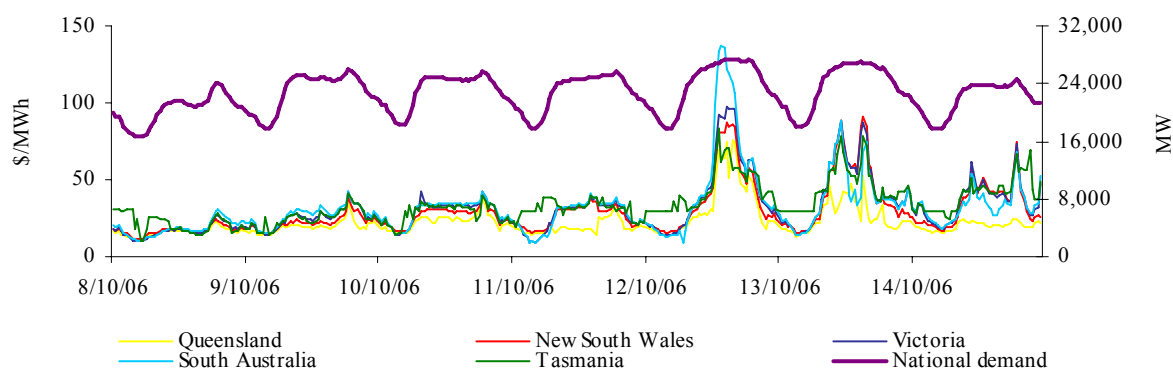


Figure 2: volume weighted average spot price for energy market (\$/MWh) ▲ ▼

	QLD	NSW	VIC	SA	TAS
Last week	23	31	33	34	34
Previous week	19	21	23	26	24
Same quarter last year	39	73	32	47	63
Financial year to date	26	38	38	42	41
% change from previous week*	▲20%	▲46%	▲42%	▲32%	▲40%
% change from same quarter last year**	▼42%	▼58%	▲2%	▼27%	▼46%
% change from year to date***	▲17%	▲32%	▲29%	▲24%	▼58%

*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

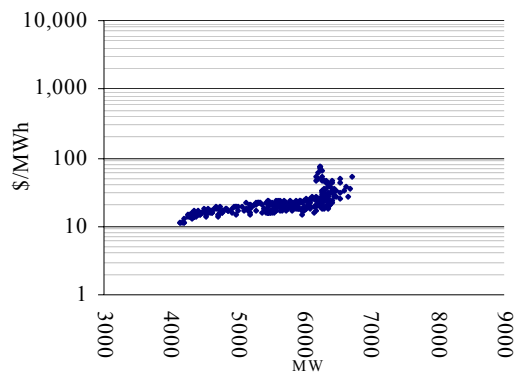


Figure 4: New South Wales

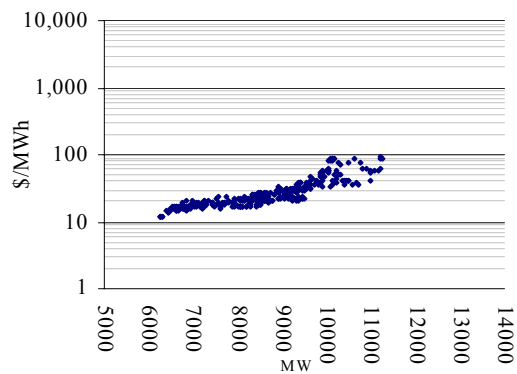


Figure 5: Victoria

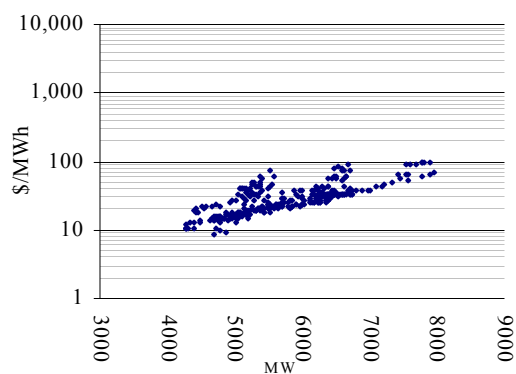


Figure 6: South Australia

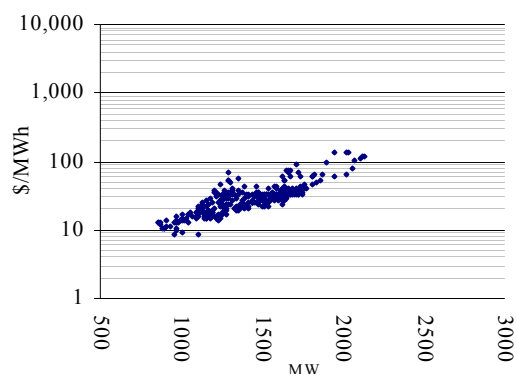
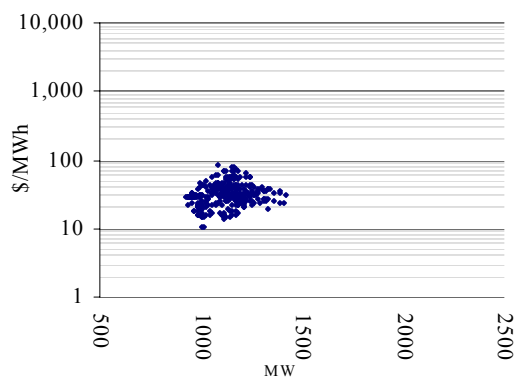


Figure 7: Tasmania



The maximum spot prices for the week ranged from \$75/MWh in Queensland to \$137/MWh in South Australia. 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	0.91	1.20	1.08	0.97	0.88
Previous week	0.30	0.36	0.41	0.42	0.46
Same quarter last year	1.12	1.03	0.83	0.76	0.61

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

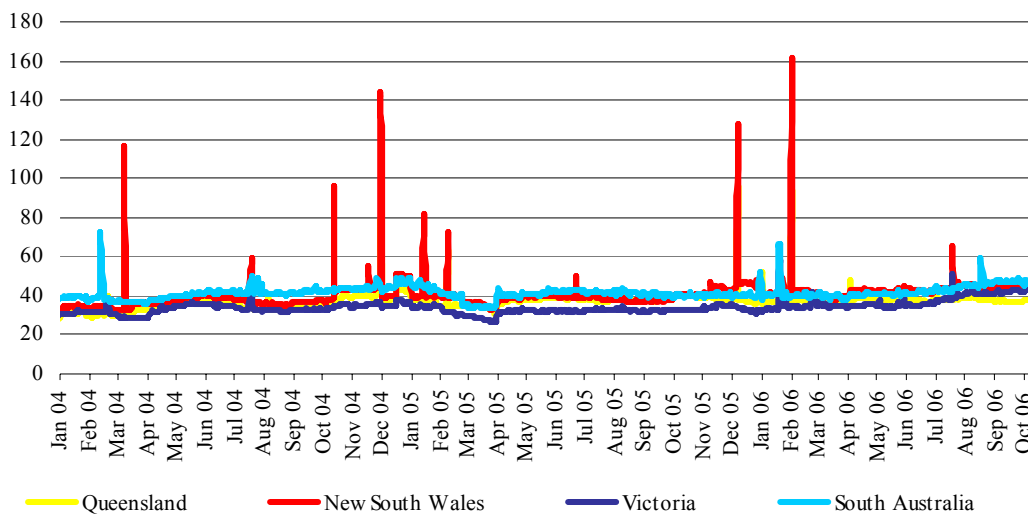
Figure 9 sets out the d-cyphaTrade wholesale electricity price index (WEPI)* for each region throughout the week excluding Tasmania. Figure 10 sets out the WEPI since 1 January 2004.

Figure 9: d-cyphaTrade WEPI for the week

	Monday	Tuesday	Wednesday	Thursday	Friday
Queensland	37.51	37.45	37.24	37.70	37.56
New South Wales	44.44	44.46	43.99	45.06	45.93
Victoria	42.59	42.66	42.55	43.94	42.97
South Australia	46.22	47.01	47.10	48.98	47.59

* 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

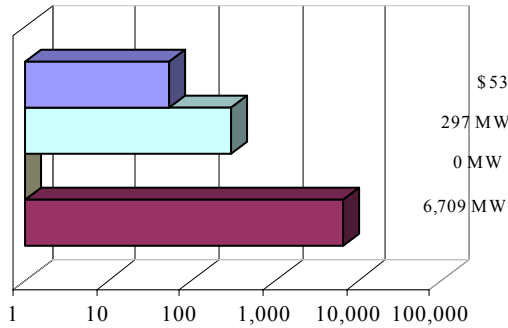


Figure 12: New South Wales

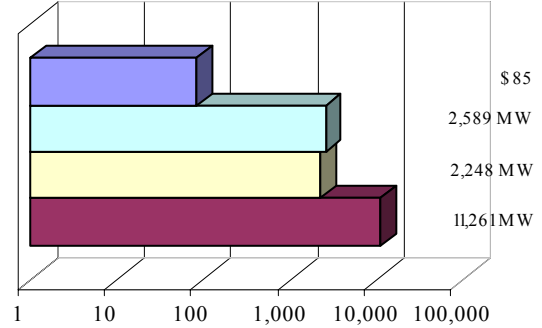


Figure 13: Victoria

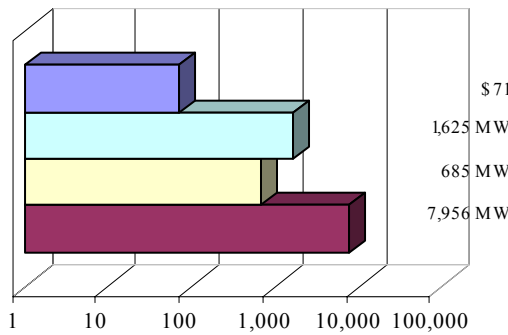


Figure 14: South Australia

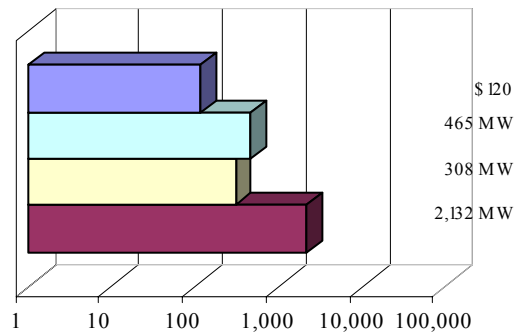
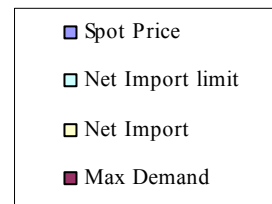
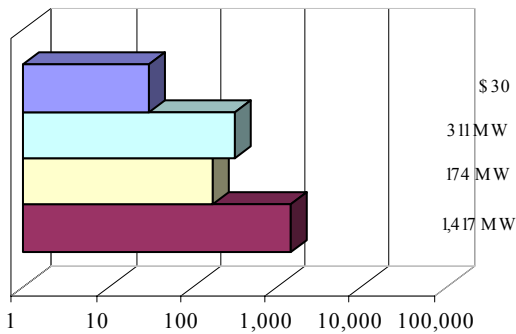


Figure 15: Tasmania



Price variations

There were 80 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

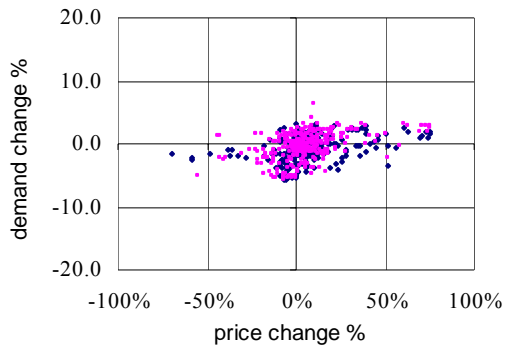


Figure 17: New South Wales



Figure 18: Victoria

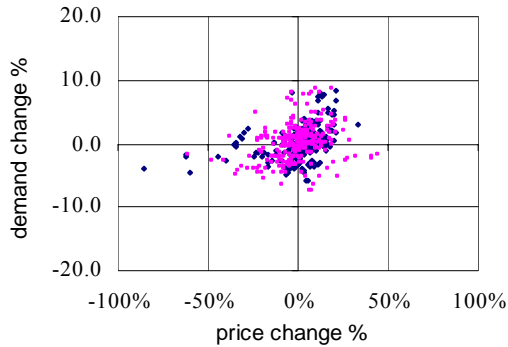


Figure 19: South Australia

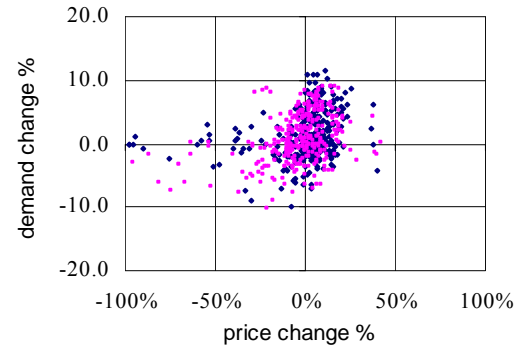


Figure 20: Tasmania

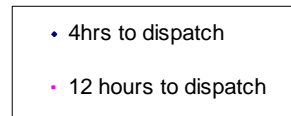
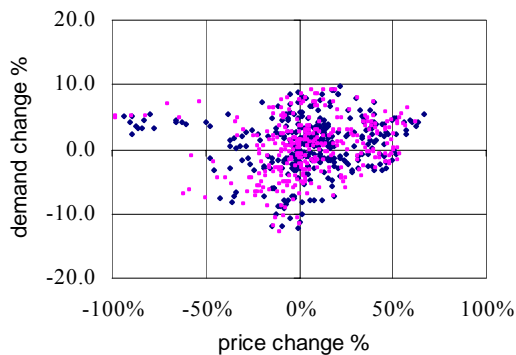
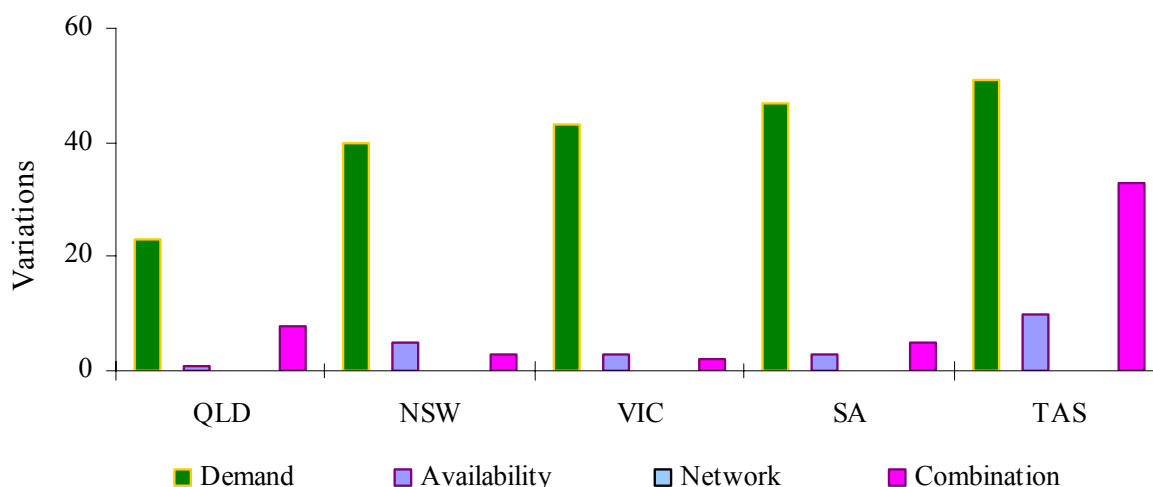


Figure 21 summarises the number and most probable reason for variations between forecast and actual prices.

Figure 21: reasons for variations between forecast and actual prices



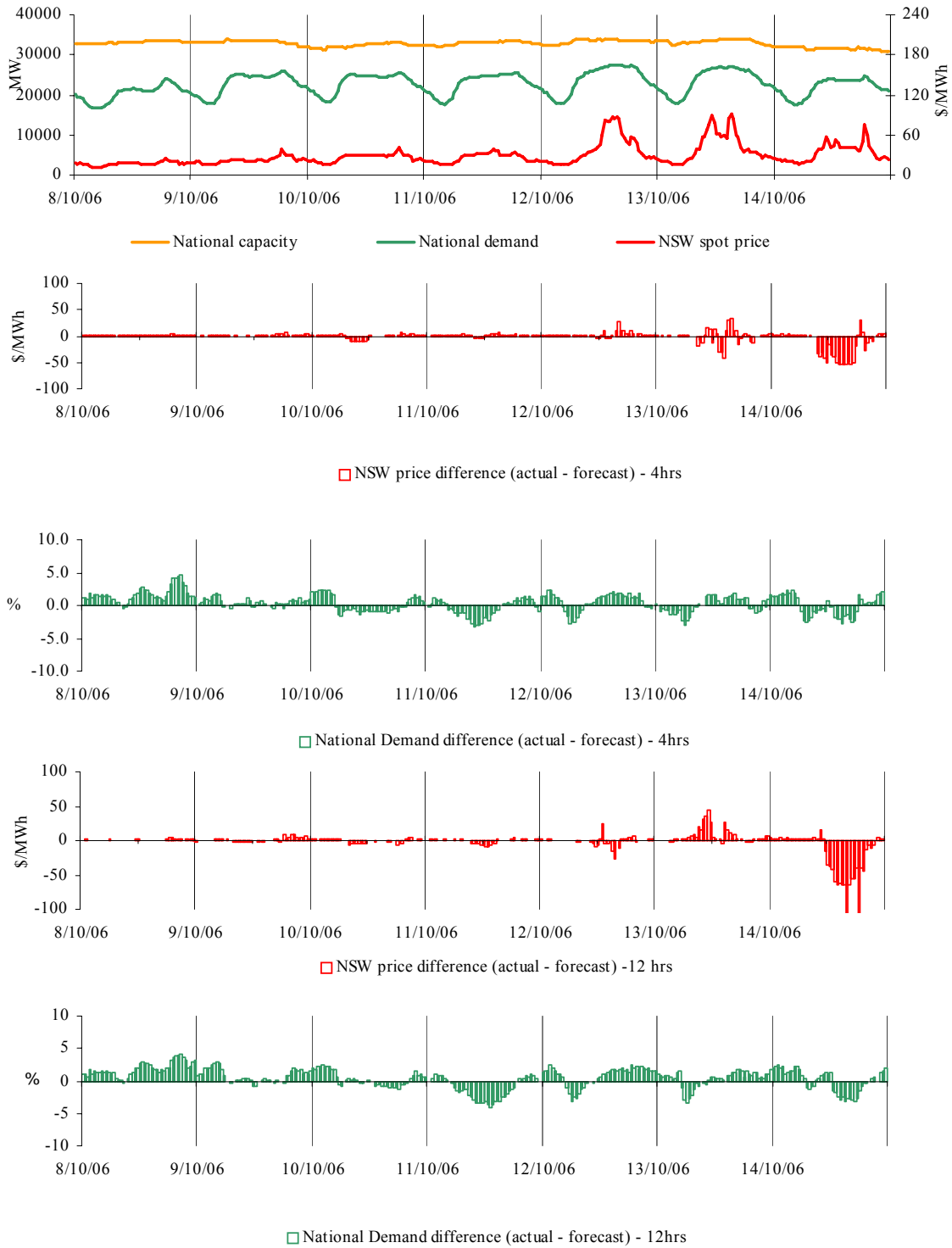
Price and demand

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.

The regions 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.

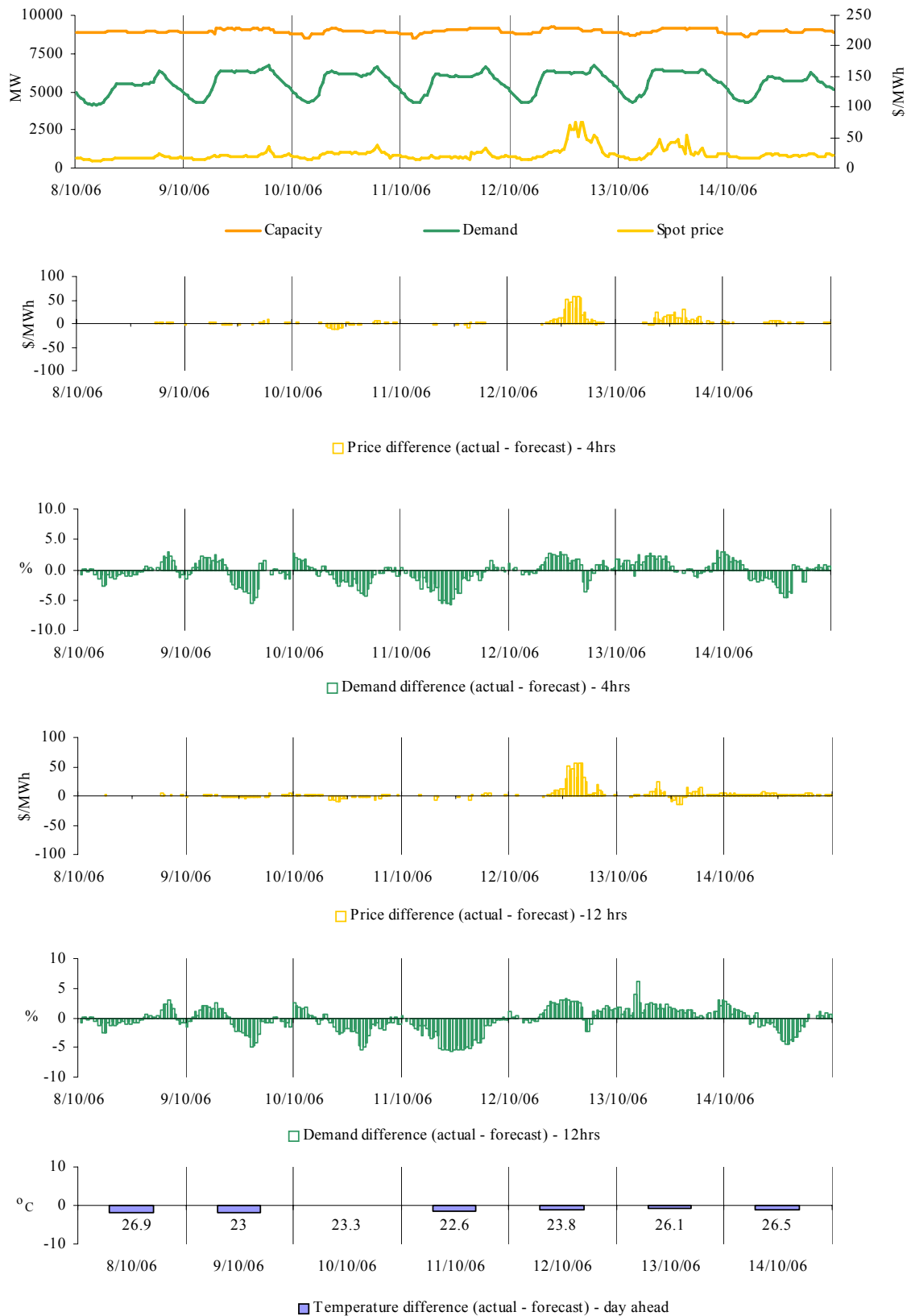
Figures 22-26: National market outcomes



There was no occasion where spot prices were nationally aligned and the New South Wales price¹ was greater than three times the New South Wales weekly average price of \$31/MWh.

¹ 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 four occasions where the spot price in Queensland was greater than three times the weekly average price of \$23/MWh.

Thursday, 12 October

1:30 pm	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	69.82	18.67	18.67
Demand (MW)	6252	6132	6070
Available capacity (MW)	9189	9221	9171
3:00 pm	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	74.83	18.67	18.67
Demand (MW)	6239	6150	6067
Available capacity (MW)	9164	9165	9155
4:00 pm	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	75.49	18.67	18.67
Demand (MW)	6232	6122	6072
Available capacity (MW)	9021	9179	9154
4:30 pm	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	73.81	18.67	18.67
Demand (MW)	6239	6185	6121
Available capacity (MW)	8995	9179	9154

Conditions at the time saw demand close to forecast. Flows across the QNI and Terranora interconnectors into New South Wales were close to their limits. Prices were aligned with New South Wales for much of the period.

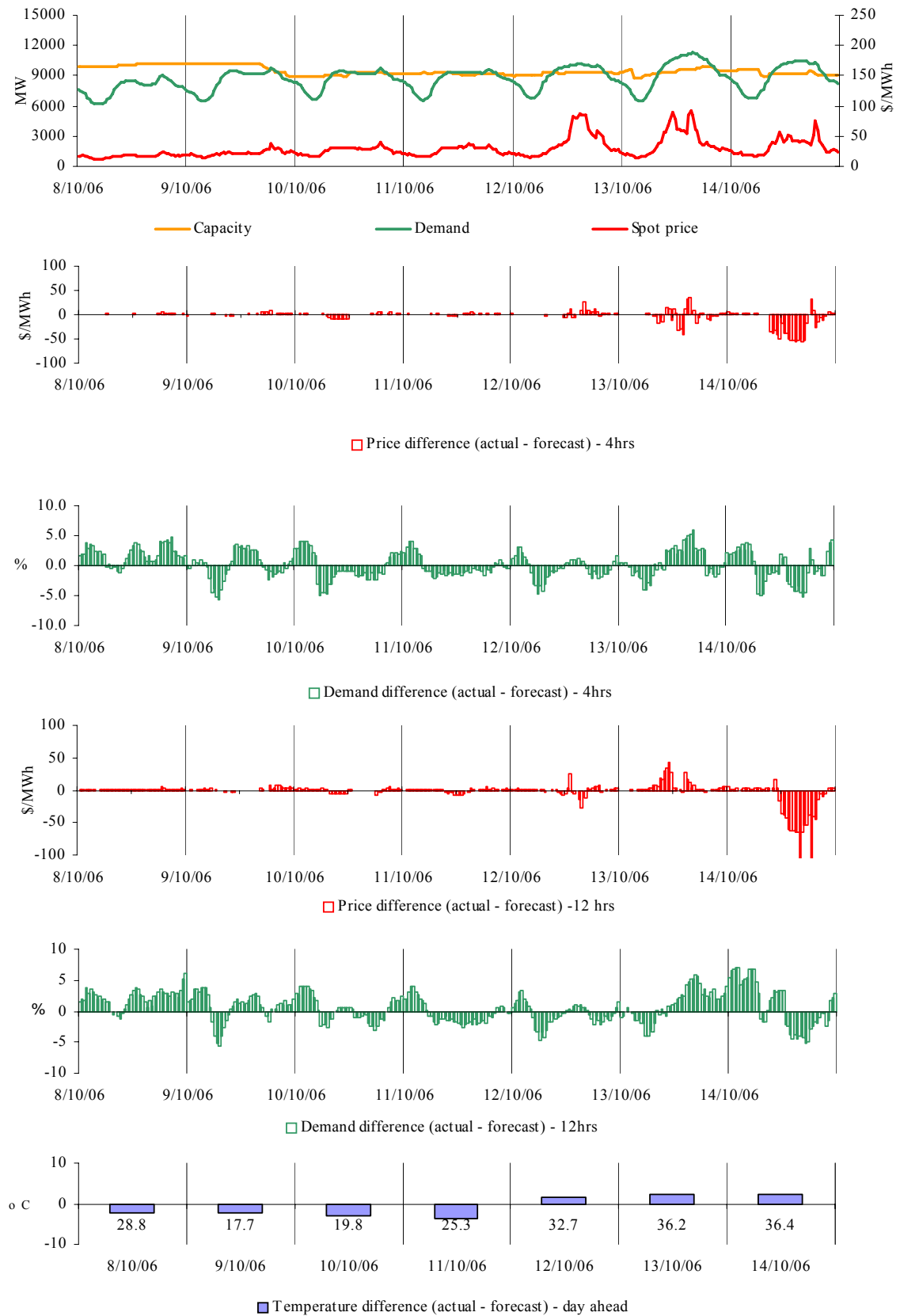
At 12.11 pm Millmerran Energy rebid 200 MW of capacity across its portfolio from prices below \$18/MWh to above \$9000/MWh. The rebid reason given was “F PD constraint change MW distribution”.

At 12.49 pm Tarong Energy rebid 55 MW of capacity at Wivenhoe unit two from prices below \$60/MWh to above \$299/MWh. The rebid reason given was “P prevent uneconomic dispatch::adjust profile”.

At 3.32 pm Braemar unit two tripped reducing available capacity by 155 MW.

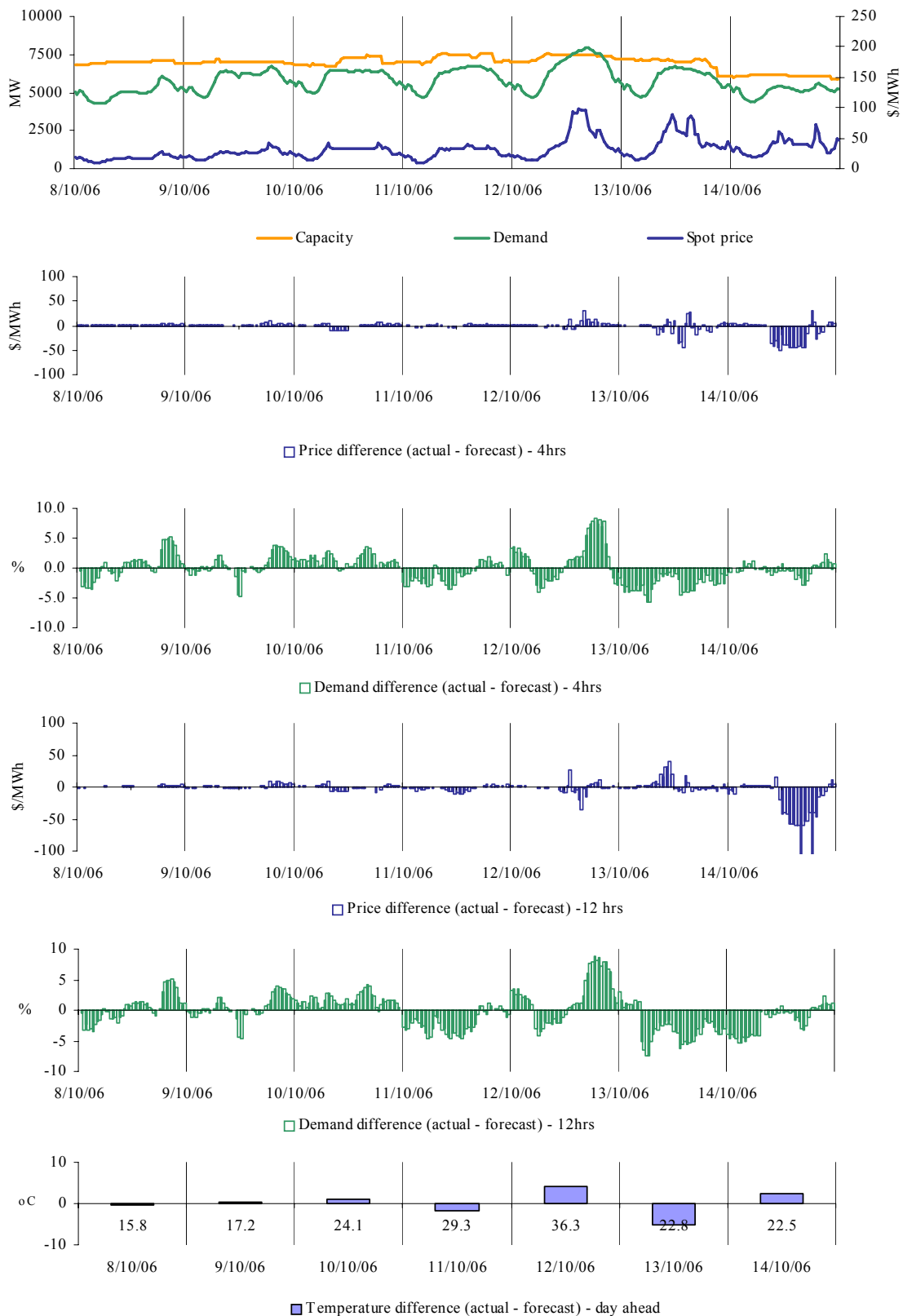
There was no other significant rebidding.

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



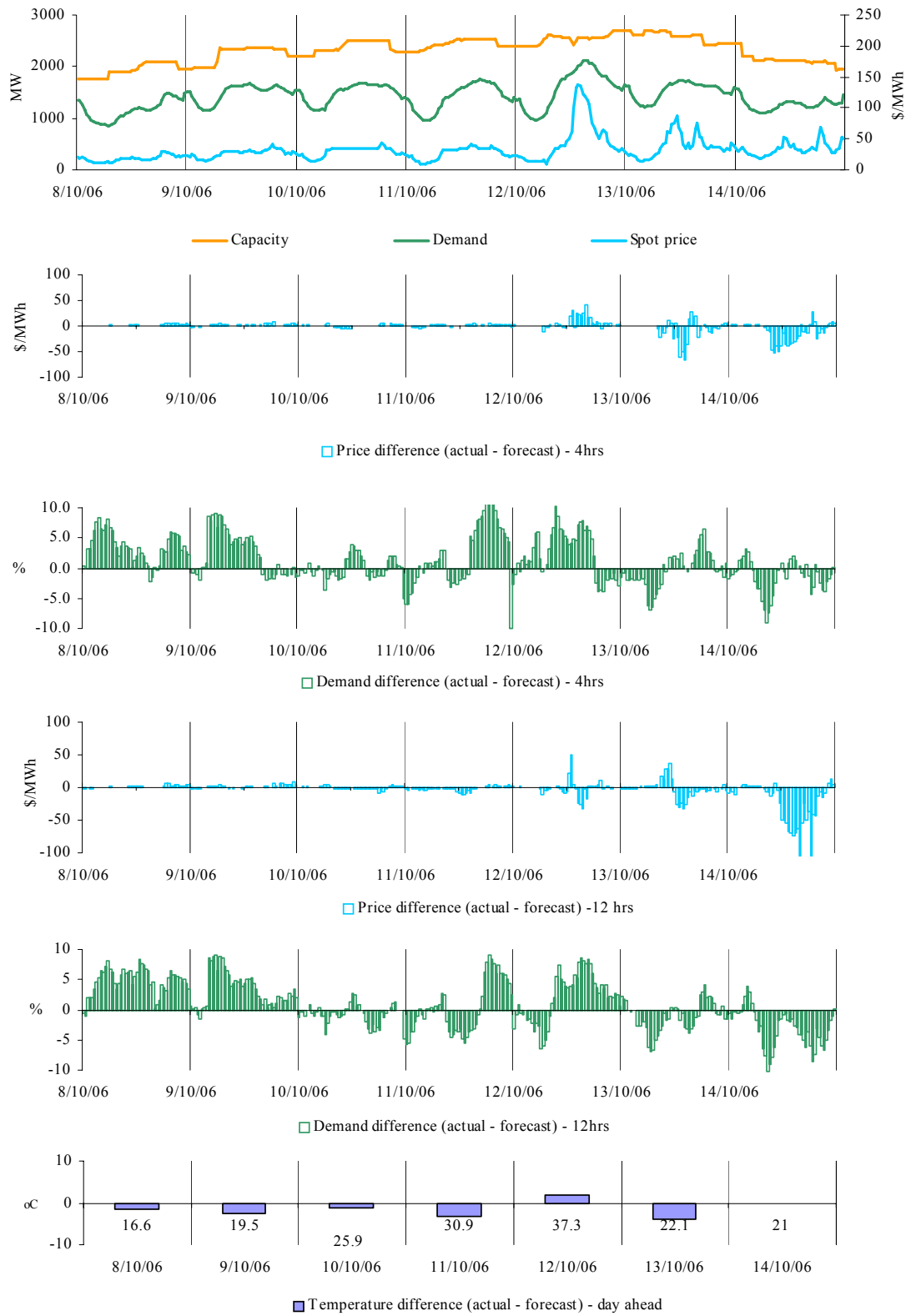
There was no occasion where the spot price in New South Wales was greater than three times the weekly average price of \$31/MWh.

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



There was no occasion where the spot price in Victoria was greater than three times the weekly average price of \$33/MWh.

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



There were seven occasions where the spot price in South Australia was greater than three times the weekly average price of \$34/MWh.

Thursday, 12 October

1:30 pm	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	133.59	101.75	83.49
Demand (MW)	1942	1861	1861
Available capacity (MW)	2518	2582	2608
2:00 pm	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	137.29	139.06	133.60
Demand (MW)	2019	1921	1903
Available capacity (MW)	2564	2582	2608
2:30 pm	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	135.71	111.70	137.87
Demand (MW)	2034	1943	1926
Available capacity (MW)	2564	2562	2608
3:00 pm	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	122.04	100.64	145.00
Demand (MW)	2115	1963	1948
Available capacity (MW)	2559	2562	2608
3:30 pm	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	119.55	101.27	145.00
Demand (MW)	2132	1969	1947
Available capacity (MW)	2558	2546	2608
4:00 pm	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	113.32	88.55	145.00
Demand (MW)	2106	1939	1936
Available capacity (MW)	2546	2546	2608
4:30 pm	Actual	4 hr forecast	12 hr forecast
Price (\$/MWh)	106.44	65.70	109.23
Demand (MW)	2077	1950	1918
Available capacity (MW)	2545	2559	2608

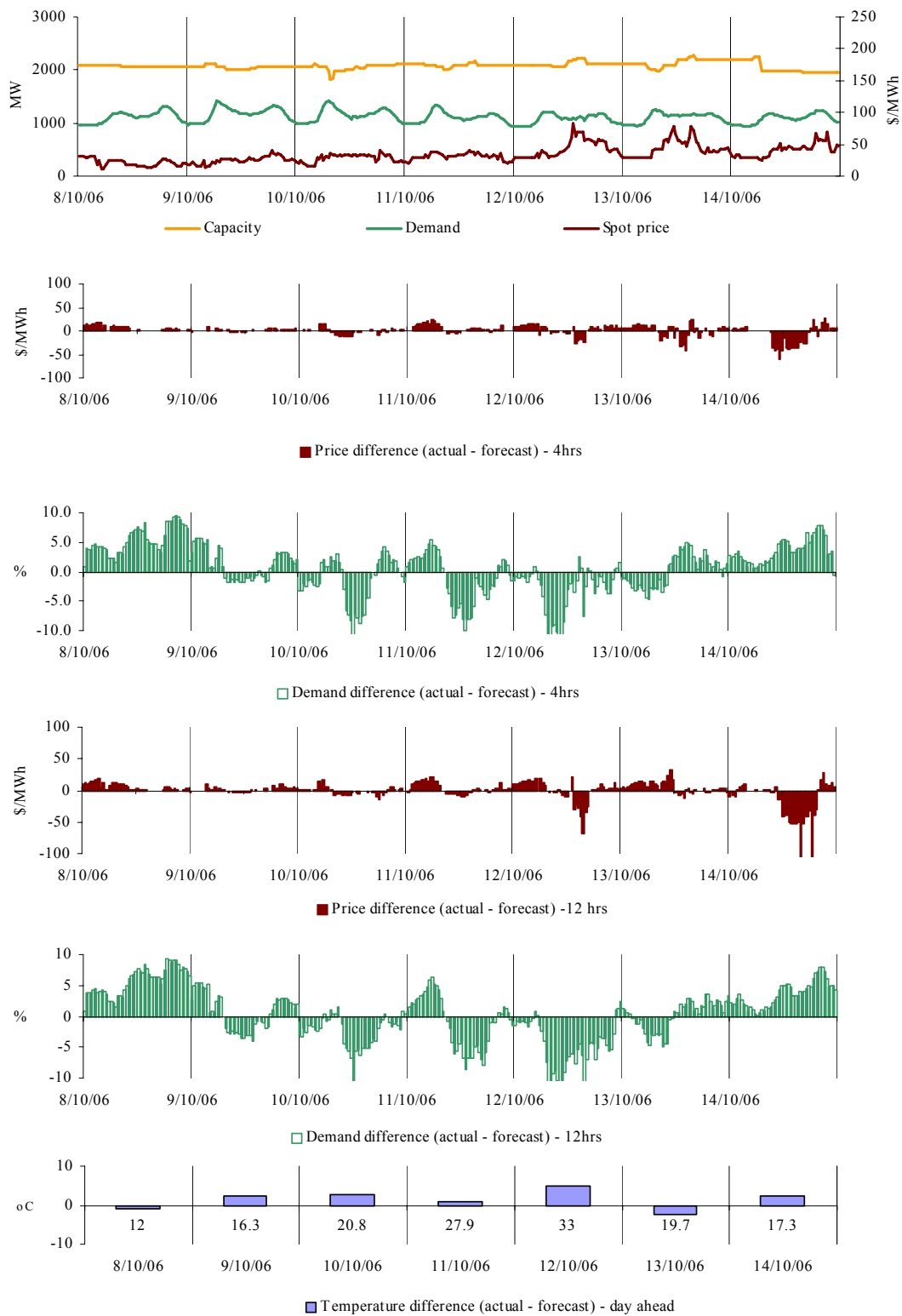
Conditions at the time saw demand around 170 MW higher than forecast four hours ahead with prices close to those forecast.

At 10.25 am, AGL Hydro rebid 120 MW of capacity at Hallett from prices above \$9000/MWh to zero. The rebid reason given was “Predispatch – Forecast price change::increase”.

At 12.08 pm, TRU Energy reduced the availability of Torrens Island unit B1 by 140 MW for around one hour. Most of this capacity was priced at less than \$150/MWh. The rebid reason given was “Contractual change”. Over a number of further rebids, this capacity was returned earlier than previously indicated and most was repriced at above \$280/MWh. The rebid reasons given included “Market conditions-gen response to PD conditions” and “Market conditions-gen response to change wind gen”.

There was no other significant rebidding.

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 \$34/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

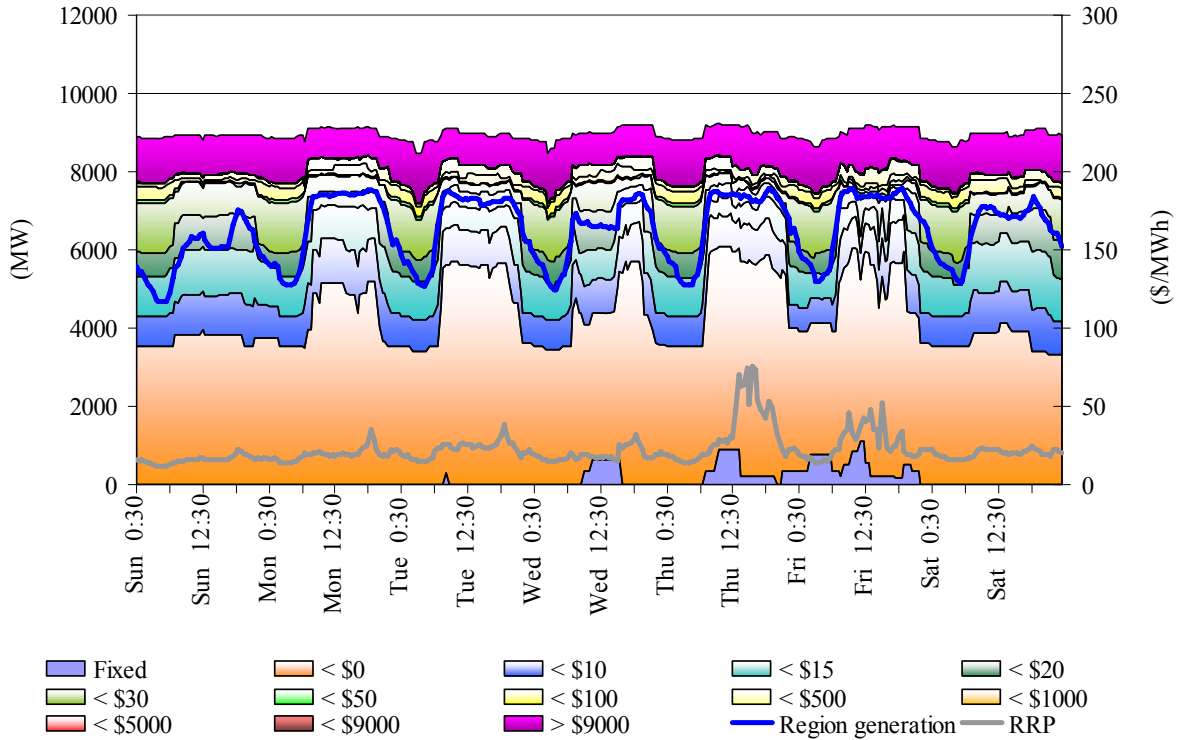


Figure 58: New South Wales closing bid prices, dispatched generation and spot price

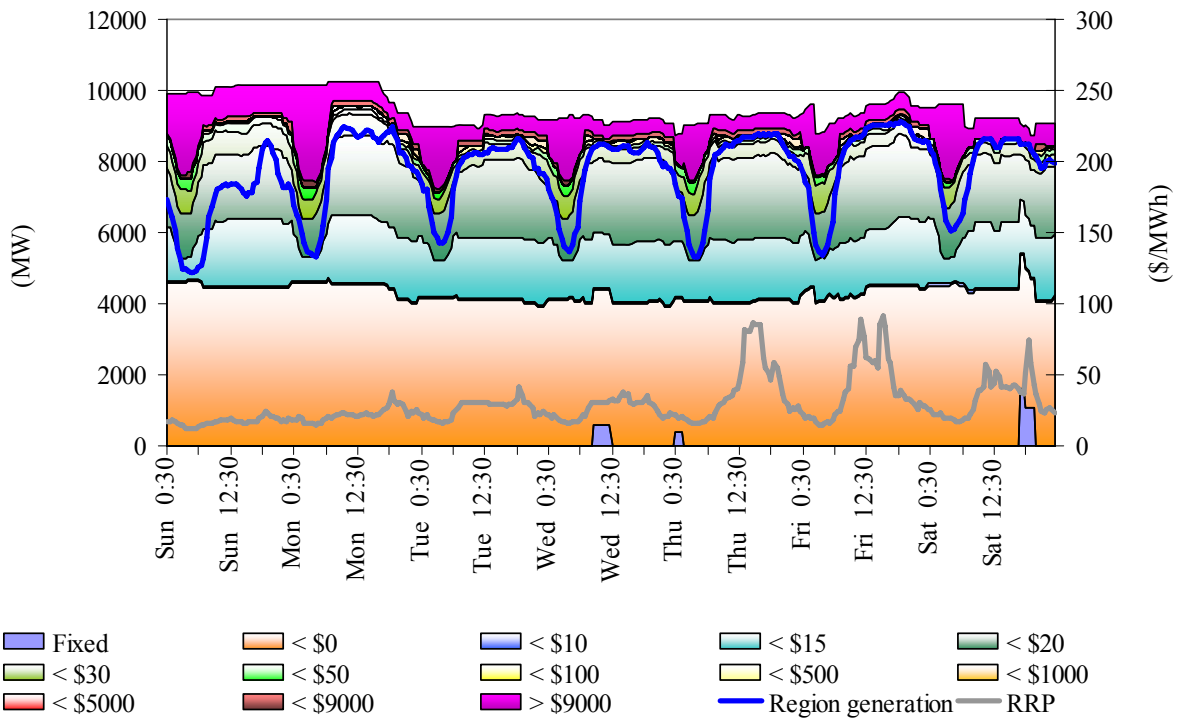


Figure 59: Victoria closing bid prices, dispatched generation and spot price

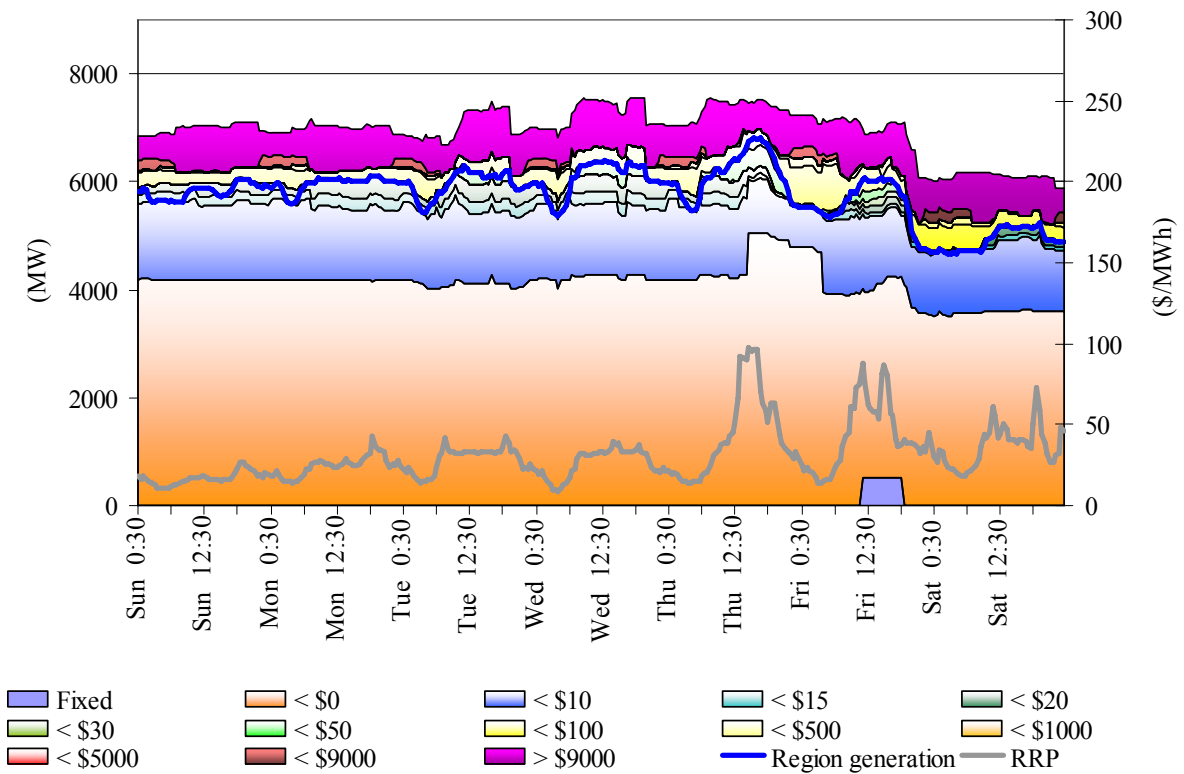


Figure 60: South Australia closing bid prices, dispatched generation and spot price

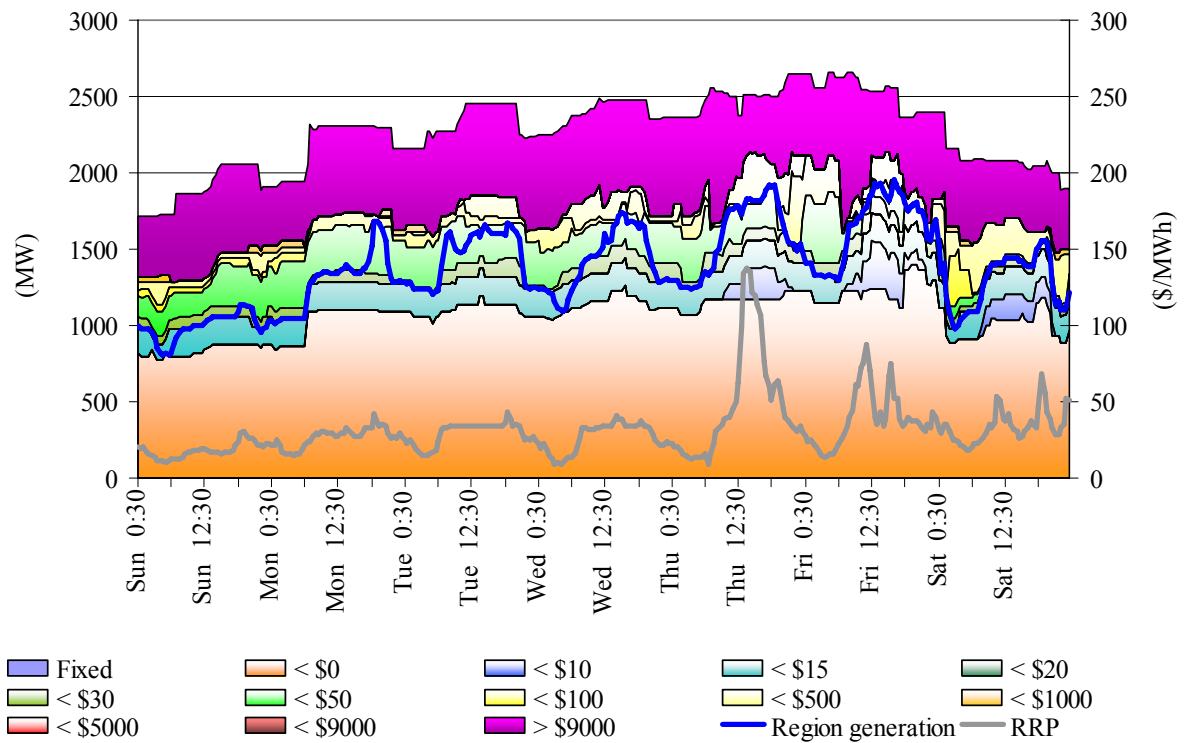
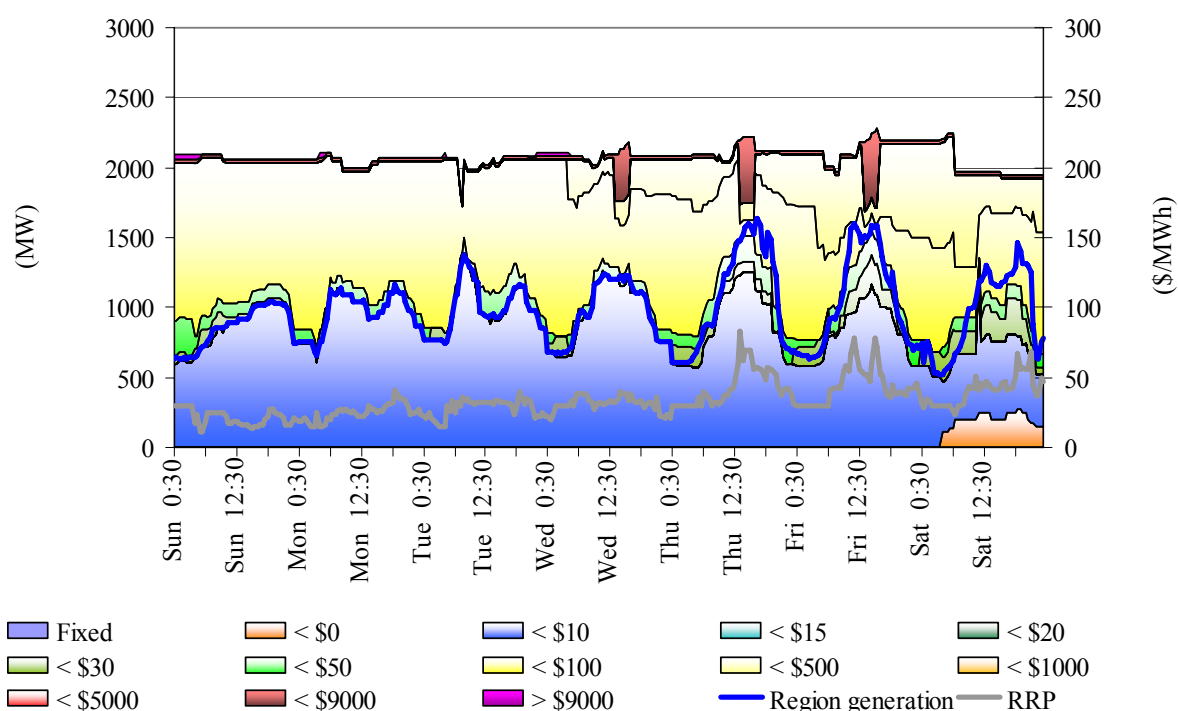


Figure 61: Tasmania closing bid prices, dispatched generation and spot price



Ancillary service market

The total cost of ancillary services on the mainland for the week was \$180 000 or 0.2 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)	0.72	0.15	1.03	2.10	2.61	0.59	0.58	0.88
Previous week (\$/MW)	1.14	0.22	0.87	2.10	0.17	0.92	0.72	1.13
Last quarter (\$/MW)	1.76	0.73	1.15	1.54	0.39	2.28	5.00	1.93
Market Cost (\$1000s)	\$31	\$6	\$57	\$51	\$8	\$3	\$12	\$13
% of energy market	0.03%	0.01%	0.05%	0.05%	0.01%	0.01%	0.01%	0.01%

The total cost of ancillary services in Tasmania for the week was \$67 000 or 1 per cent of the total turnover in the energy market 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)	1.73	0.80	2.18	3.86	0.19	0.39	0.53	0.89
Previous week (\$/MW)	1.41	0.80	2.04	3.52	2.34	0.37	0.43	0.97
Last quarter (\$/MW)	4.97	0.49	2.93	3.00	12.67	0.43	0.82	0.45
Market Cost (\$1000s)	\$8	\$10	\$26	\$8	\$1	\$5	\$5	\$5
% of energy market	0.12%	0.16%	0.42%	0.12%	0.02%	0.07%	0.07%	0.08%

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

Figure 64: daily frequency control ancillary service cost

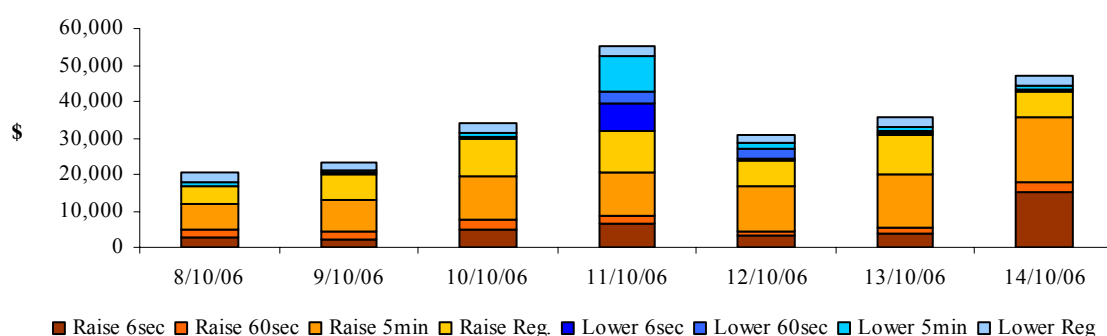
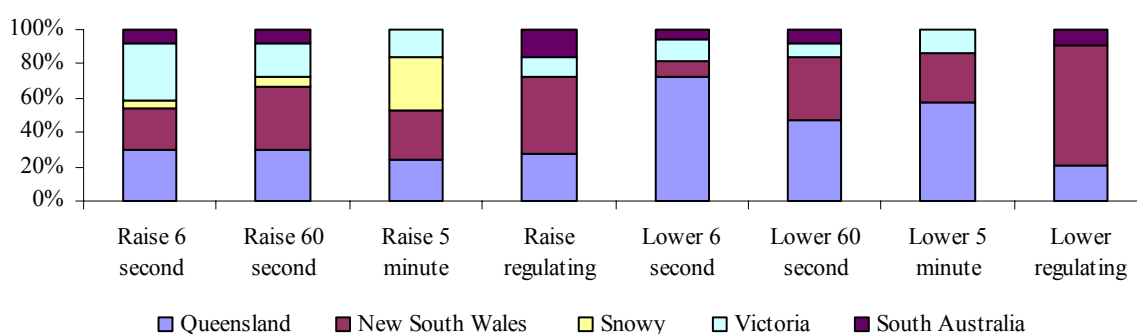


Figure 65 shows the contribution, on a percentage basis, that frequency control ancillary service providers are utilised (in each mainland region) to satisfy the total requirement for each service.

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

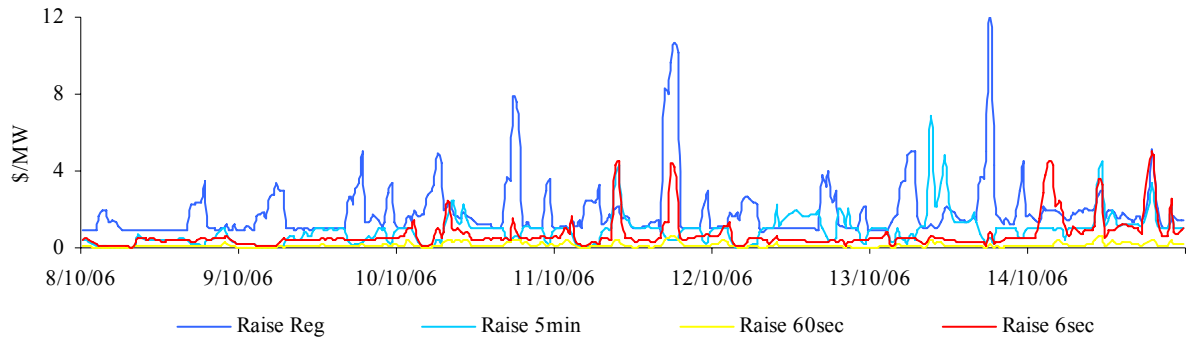


Figure 66A: prices for raise services – Tasmania

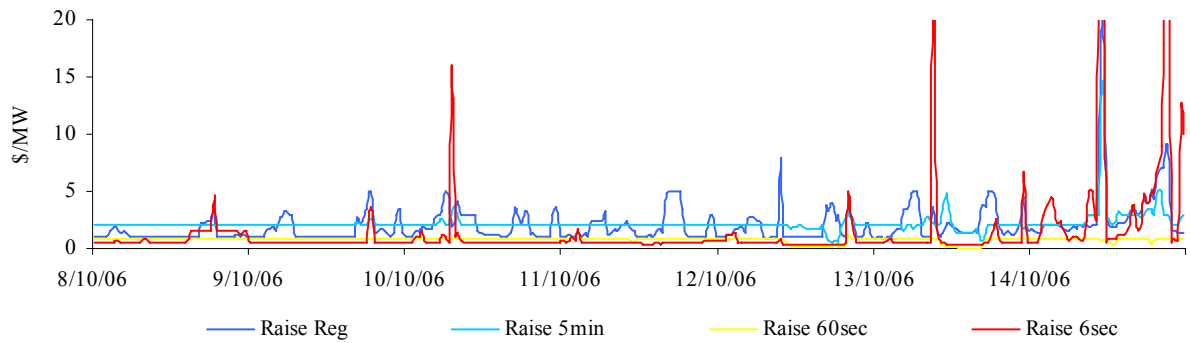


Figure 67: prices for lower services

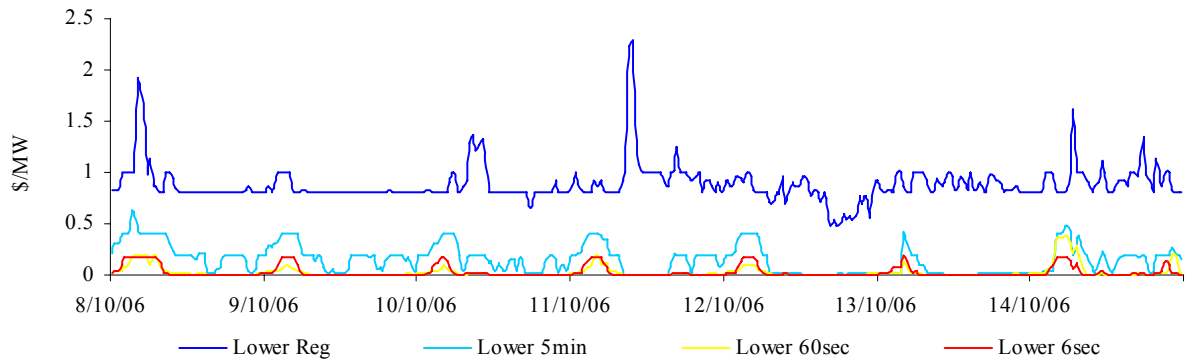
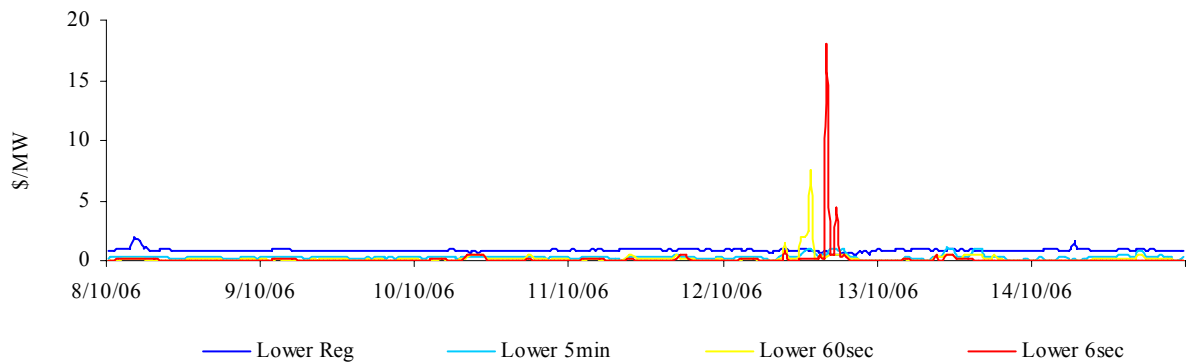


Figure 67A: prices for lower services – Tasmania



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

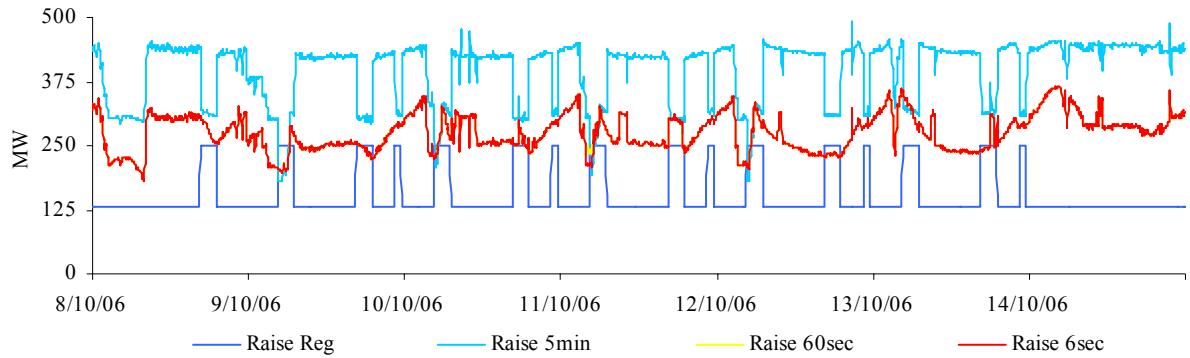


Figure 68A: raise requirements – Tasmania

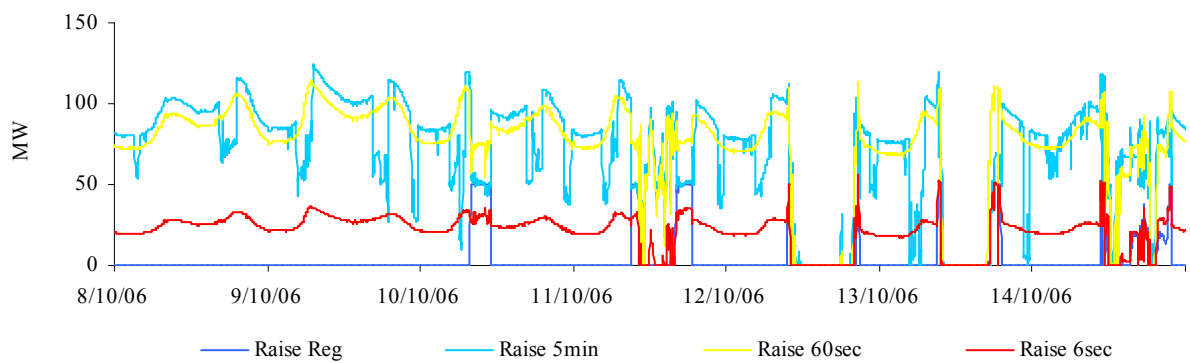


Figure 69: lower requirements

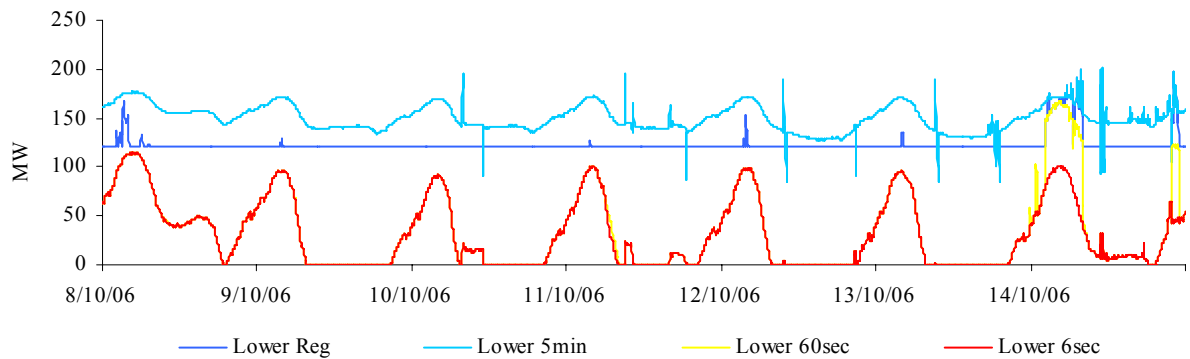


Figure 69A: lower requirements – Tasmania

