Market analysis

AUSTRALIAN ENERGY REGULATOR

9 APRIL – 15 APRIL 2006

Spot prices across the mainland averaged between $17/MWh in Queensland and $31/MWh in South Australia. The average price in Tasmania increased compared to the previous week to $45/MWh, as a result of high prices on Sunday night, coinciding with a planned network outage.

Turnover in the energy market was $83 million. The total cost of ancillary services for the week, including Tasmania, was around $450 000, or 0.5 per cent of energy market turnover.

Significant variations between actual prices and those forecast 4 and 12 hours ahead occurred in 43, or 13 per cent of all trading intervals. Demand forecasts produced 4 and 12 hours ahead varied from actual by more than 5 per cent in around one fifth of all trading intervals across the market. These variations were most frequent in South Australia occurring in around half of all trading intervals.

Energy prices

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

Figure 1: national demand and spot prices

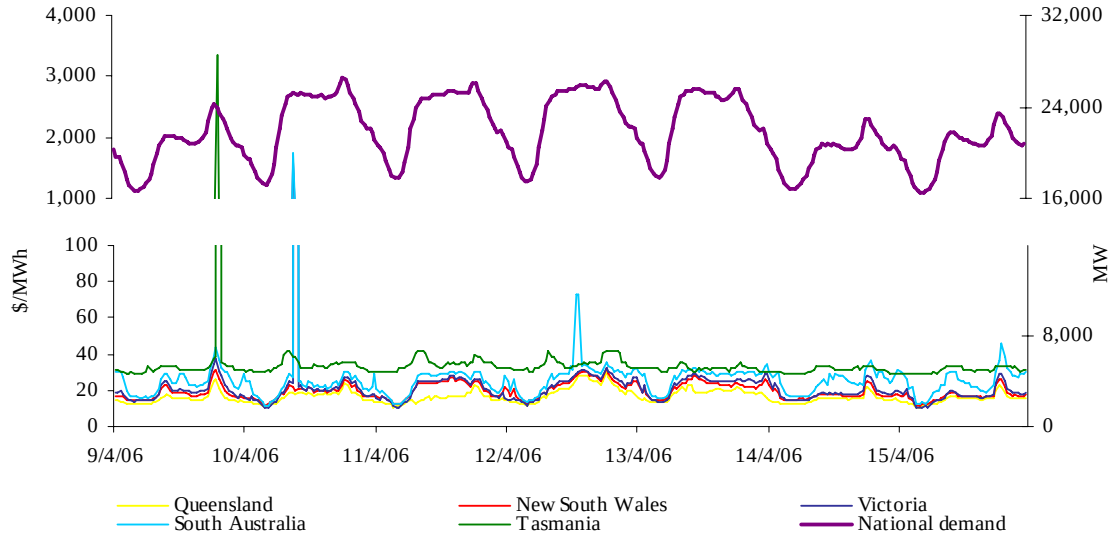


Figure 2: volume weighted average spot price for energy market ($/MWh)

	QLD	NSW	VIC	SA	TAS
Last week	17	20	26	31	45
Previous week	37	22	23	32	35
Same quarter last year	25	35	22	31	-
Financial year to date	33	47	37	45	66
% change from previous week*	▼55%	▼7%	▲13%	▼1%	▲26%
% change from same quarter last year**	▼26%	▼29%	▼2%	▼12%	-
% change from year to date***	▲2%	▼7%	▲27%	▲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 current financial year to date and the average spot price over the similar period for the previous financial year.

Figure 3: volatility index during peak periods

	QLD	NSW	VIC	SA	TAS
Last week	0.39	0.41	0.41	0.31	0.22
Previous week	0.74	0.36	0.33	0.21	0.27
Same quarter last year	0.73	0.74	0.78	0.70	-

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

Figure 4: Queensland

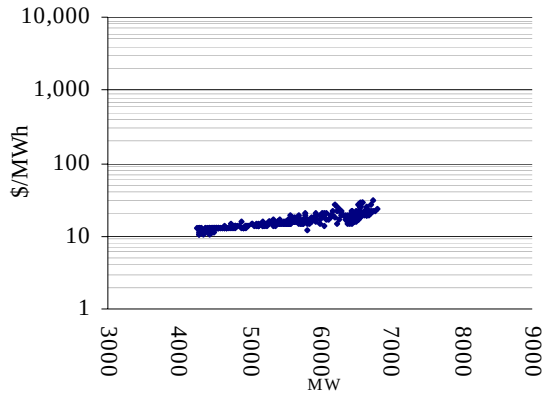


Figure 5: New South Wales

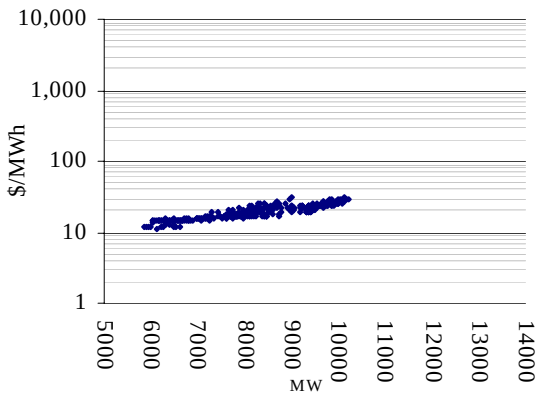


Figure 6: Victoria

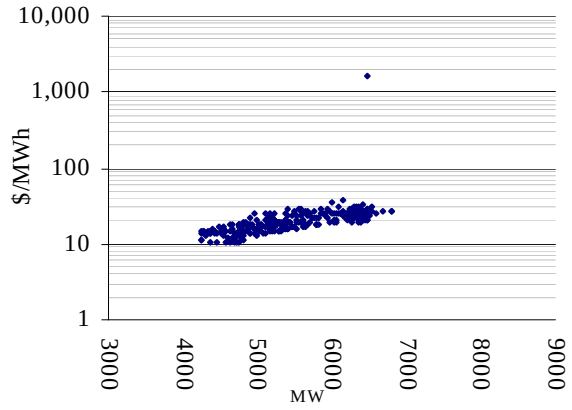


Figure 7: South Australia

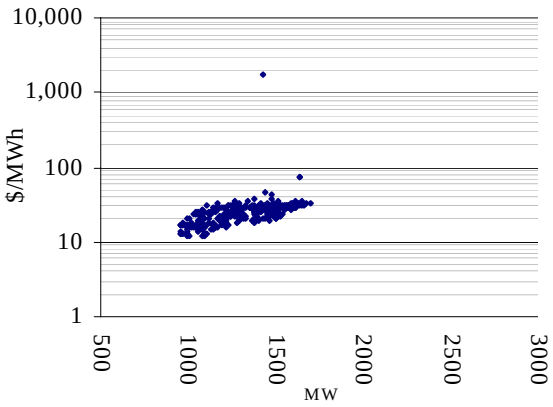
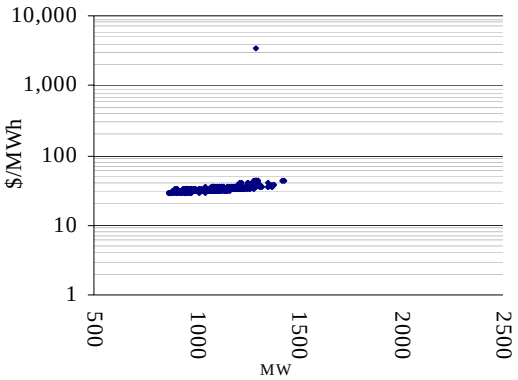


Figure 8: Tasmania



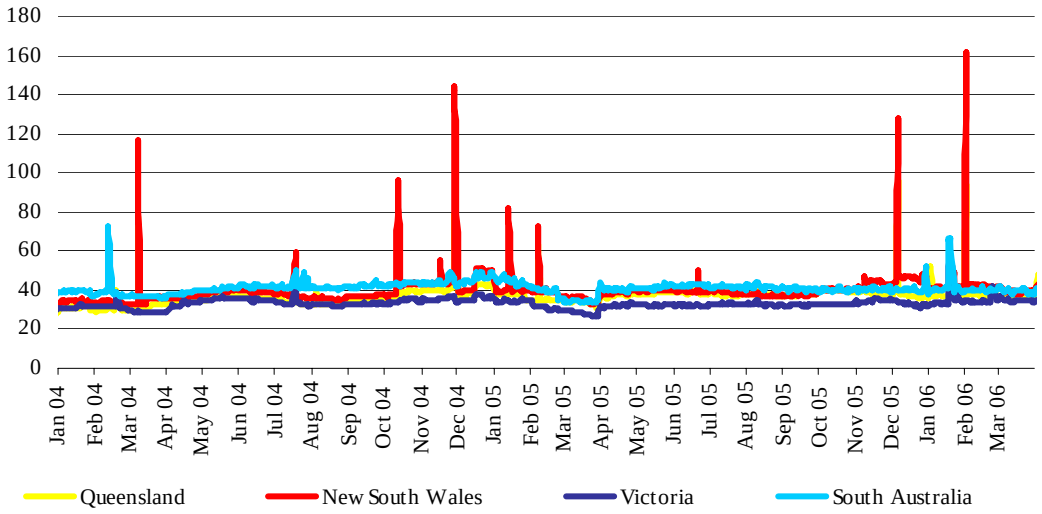
Maximum spot prices reached $30/MWh in Queensland and $32/MWh in New South Wales. South Australia and Victoria reached their maximum spot price, $1734/MWh and $1594/MWh respectively, on Monday morning at 9.30am following a planned network outage in the Snowy region. Tasmania's maximum spot price of $3349/MWh occurred on Sunday at 7.30pm, also as a result of a network outage.

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	38.57	38.77	38.66	38.69	N/A
New South Wales	42.99	43.28	43.35	43.15	N/A
Victoria	34.45	35.17	35.24	35.27	N/A
South Australia	40.39	40.42	41.00	40.56	N/A

Figure 10: d-cyphaTrade WEPI



Reserve

There were no low reserve conditions forecast during the week.

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

Figure 11: Queensland

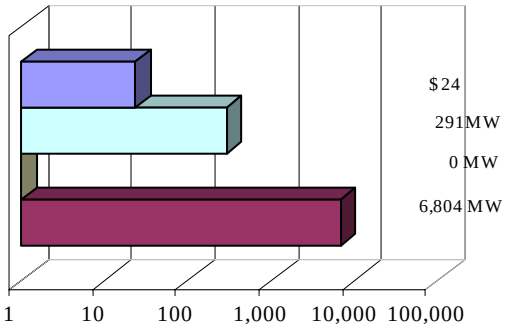


Figure 12: New South Wales

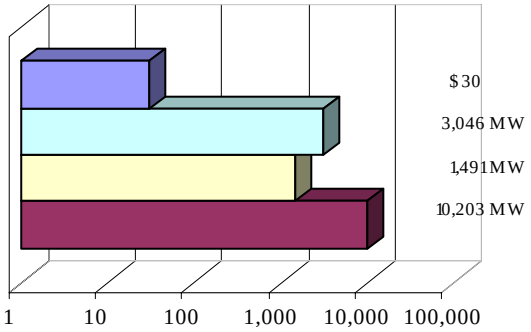


Figure 13: Victoria

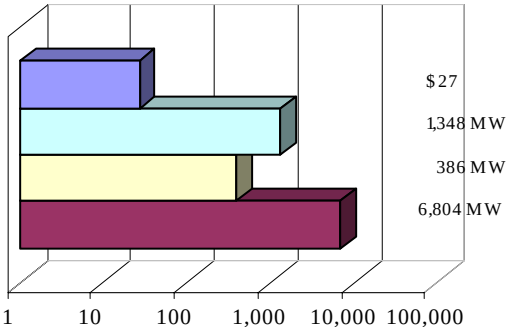


Figure 14: South Australia

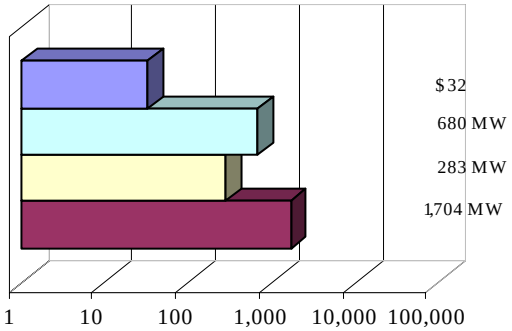
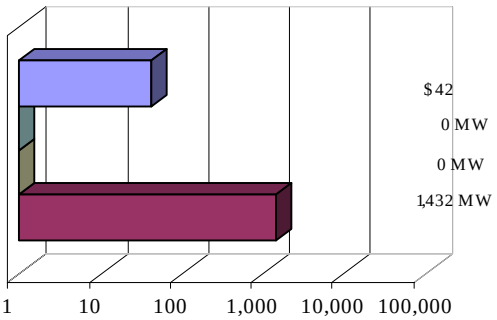
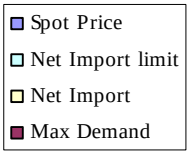


Figure 15: Tasmania





Price variations

There were 43 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 correlation between price variation and demand forecast error. The information is presented in terms of the percentage difference from actual. Price differences beyond 100 per cent have been capped.

Figure 16: Queensland

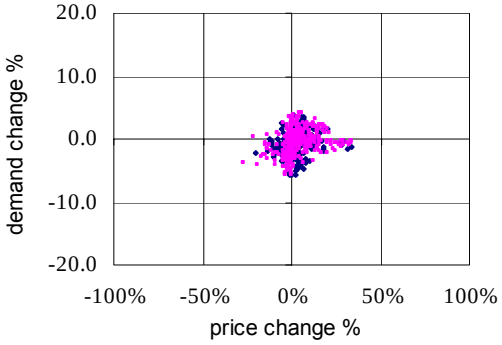


Figure 17: New South Wales

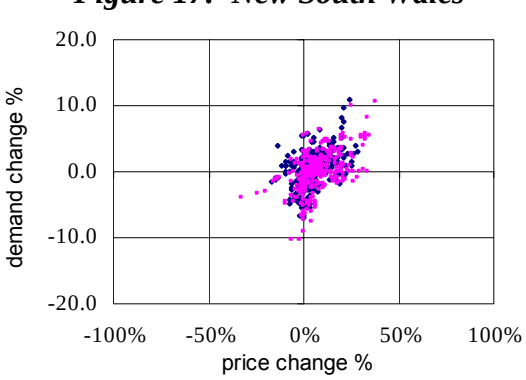


Figure 18: Victoria

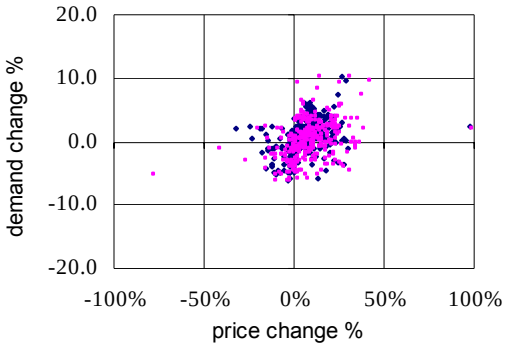


Figure 19: South Australia

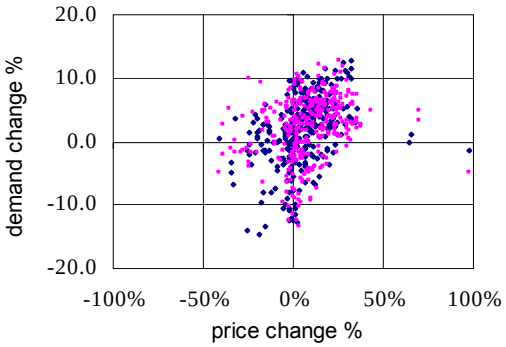
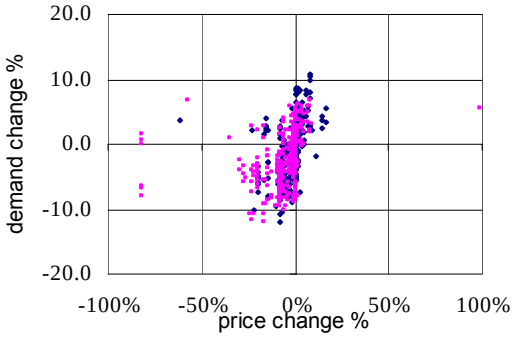


Figure 20: Tasmania



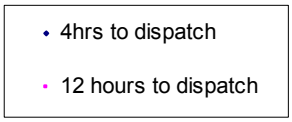
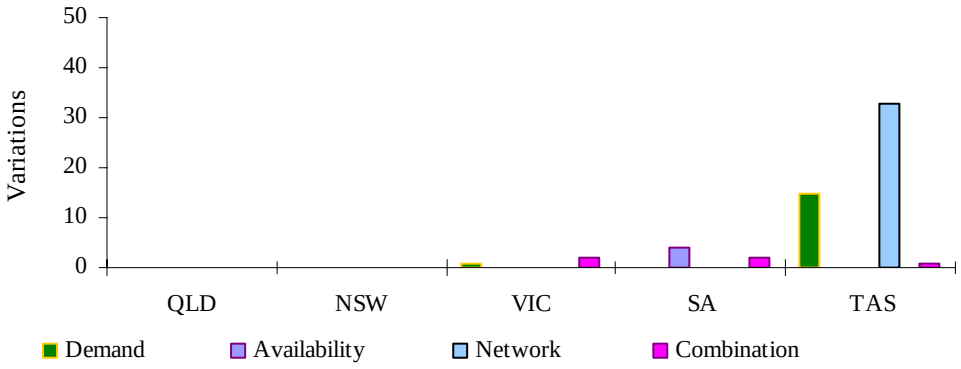


Figure 21 summarises the number and most probable reason for variations between forecast and actual prices.

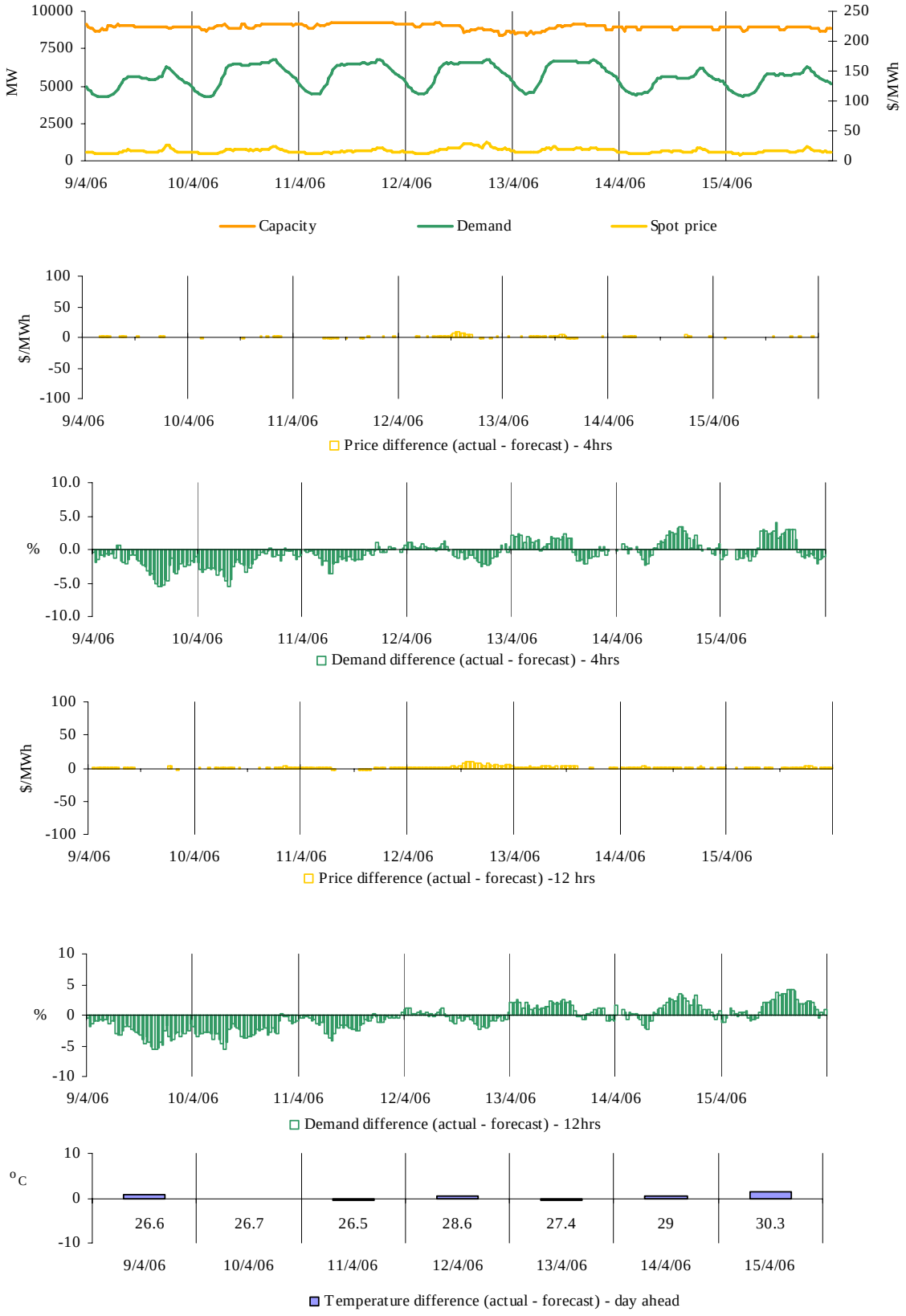
Figure 21: reasons for variations between forecast and actual prices



Price and demand

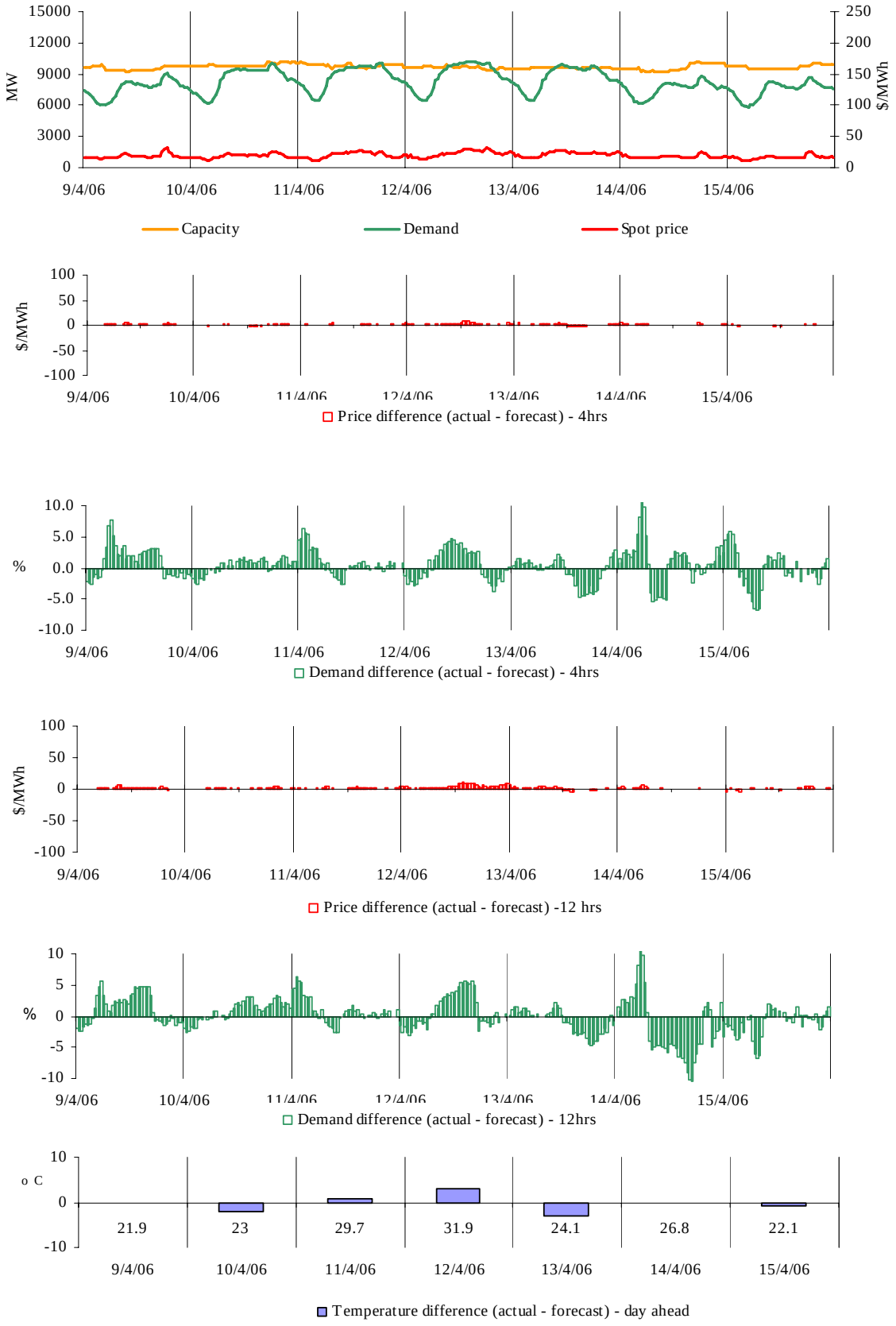
Figures 22 - 51 set out details of spot prices and demand on a regional basis. They include the actual spot price, actual demand outcomes and variation from forecasts made 4 and 12 hours ahead of dispatch on a daily basis. The differences between the maximum temperature and the temperature forecast at 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



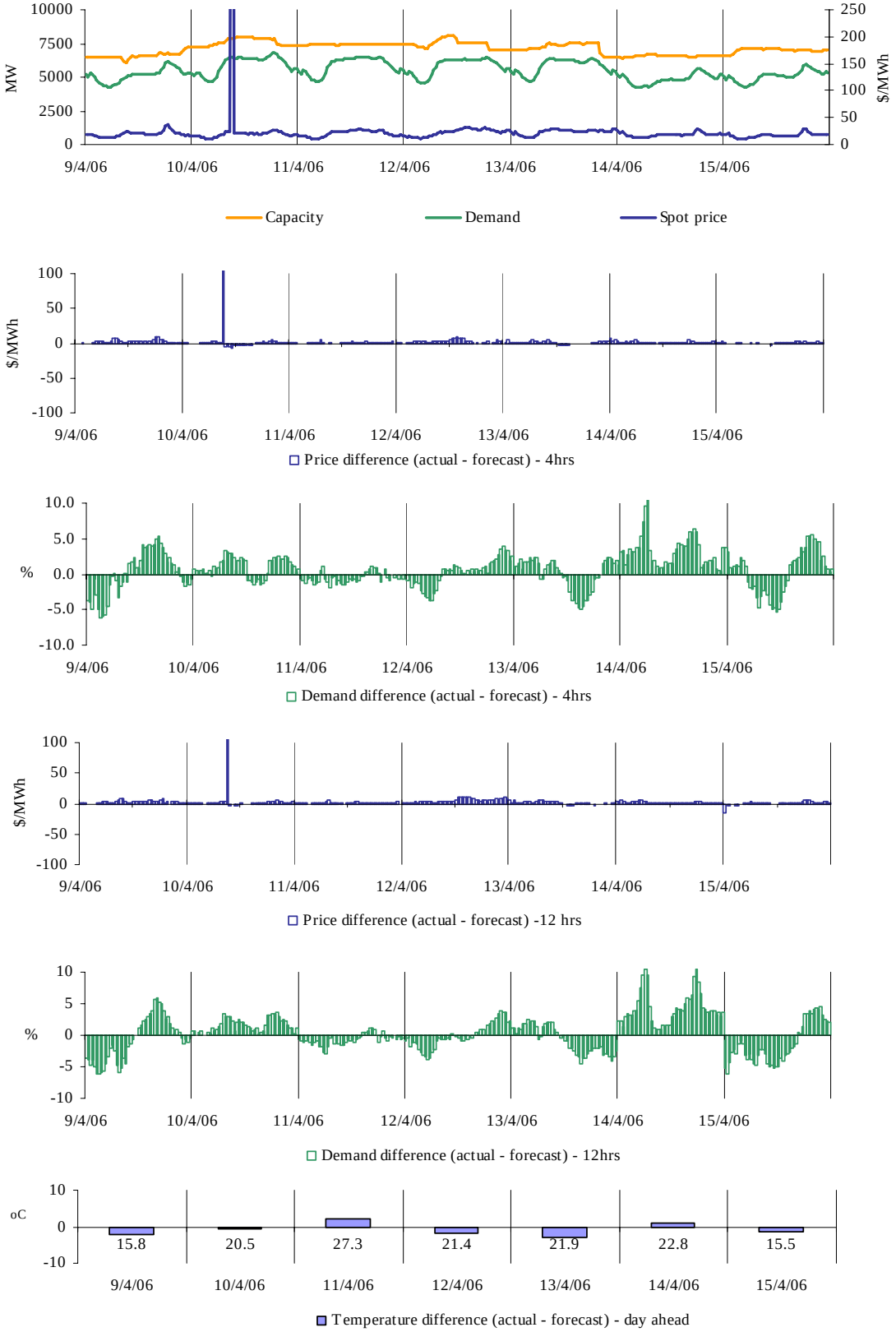
There was no occasion in Queensland where the spot price was greater than three times the weekly average price of $17/MWh.

Figures 28-33 New South Wales actual spot price, demand and forecast differences



There was no occasion in New South Wales where the spot price was greater than three times the weekly average price of $20/MWh.

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



There was one occasion in Victoria where the spot price was greater than three times the weekly average price of $26/MWh. This occurred on Monday morning.

Monday, 10 April

9:30 am	Actual	4 hr forecast	12 hr forecast
Price ($/MWh)	1593.94	33.50	25.90
Demand (MW)	6474	6329	6334
Available capacity (MW)	7868	8077	8218

Conditions at the time saw demand higher than forecast by around 150 MW. Available capacity was 200 MW lower than forecast.

A planned network outage in the Snowy region reduced the capability of the Victoria to Snowy interconnector, for flows into Victoria, by 1000 MW. Actual flows were ramped down from around 400 MW to zero from 9 am.

Earlier, at 8.25 am, TRU Energy reduced the available capacity at Yallourn by 145 MW. The reason given was “Mill problem::Capacity Limit”. All of this capacity was priced at less than $10/MWh.

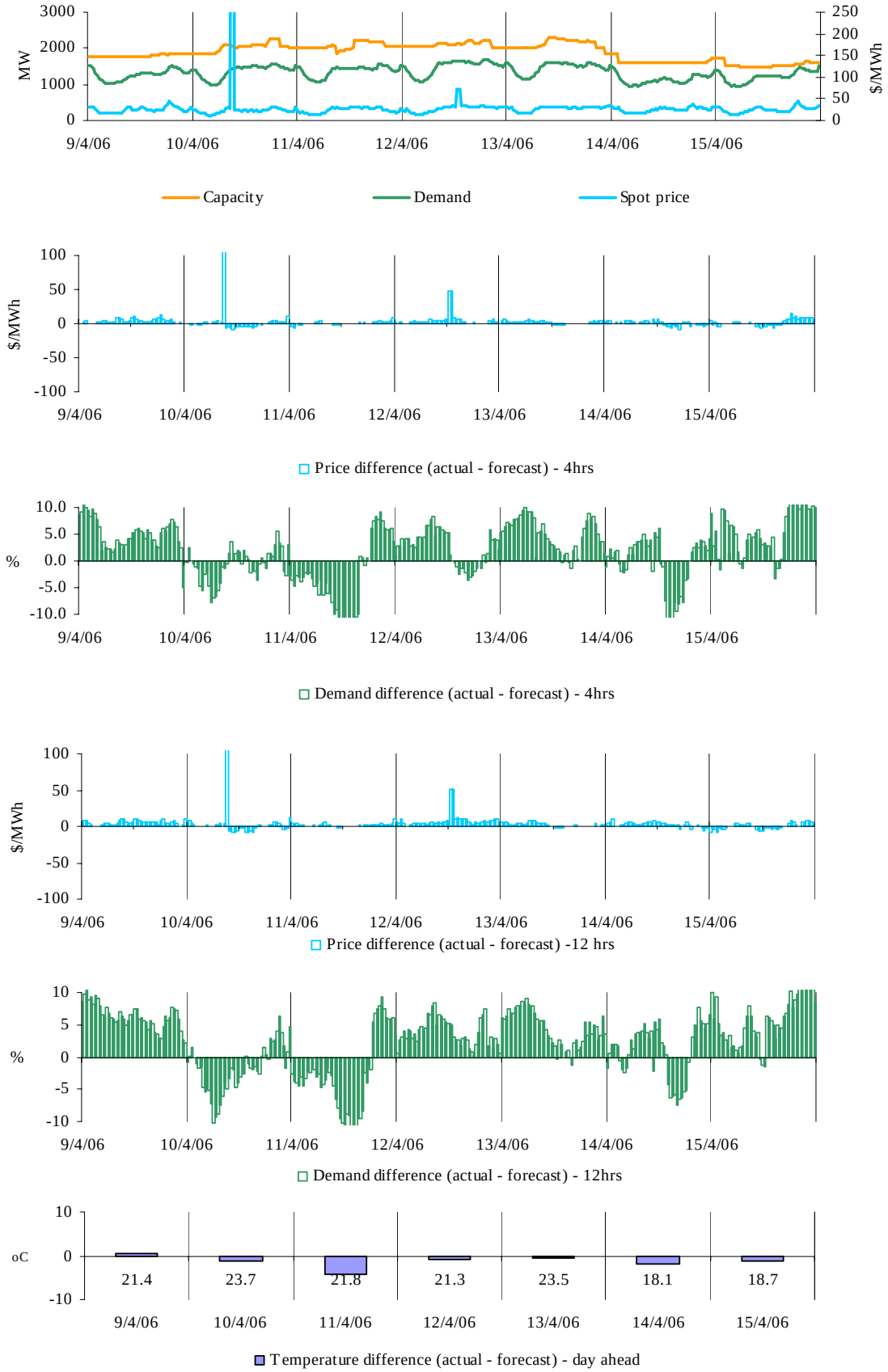
There was around 400 MW of capacity available in South Australia and Victoria priced between $40/MWh and $9000/MWh. This included 100 MW of capacity at AGL’s Dartmouth priced at $22/MWh, the unit was given targets of 100 MW from 9.05am but remained off line until 9.30am.

The combination of higher than forecast demand, lower than forecast availability, a steep supply curve and reducing imports saw the 5 minute despatch price increase from $23/MWh at 9.05 am to $270/MWh at 9.20 am and $9100/MWh at 9.25am. These prices were not forecast.

The outage was completed and limits restored to normal at 11.30am.

There was no other significant rebidding.

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



There was one occasion in South Australia where the spot price was greater than three times the weekly average price of $31/MWh. This occurred on Monday morning.

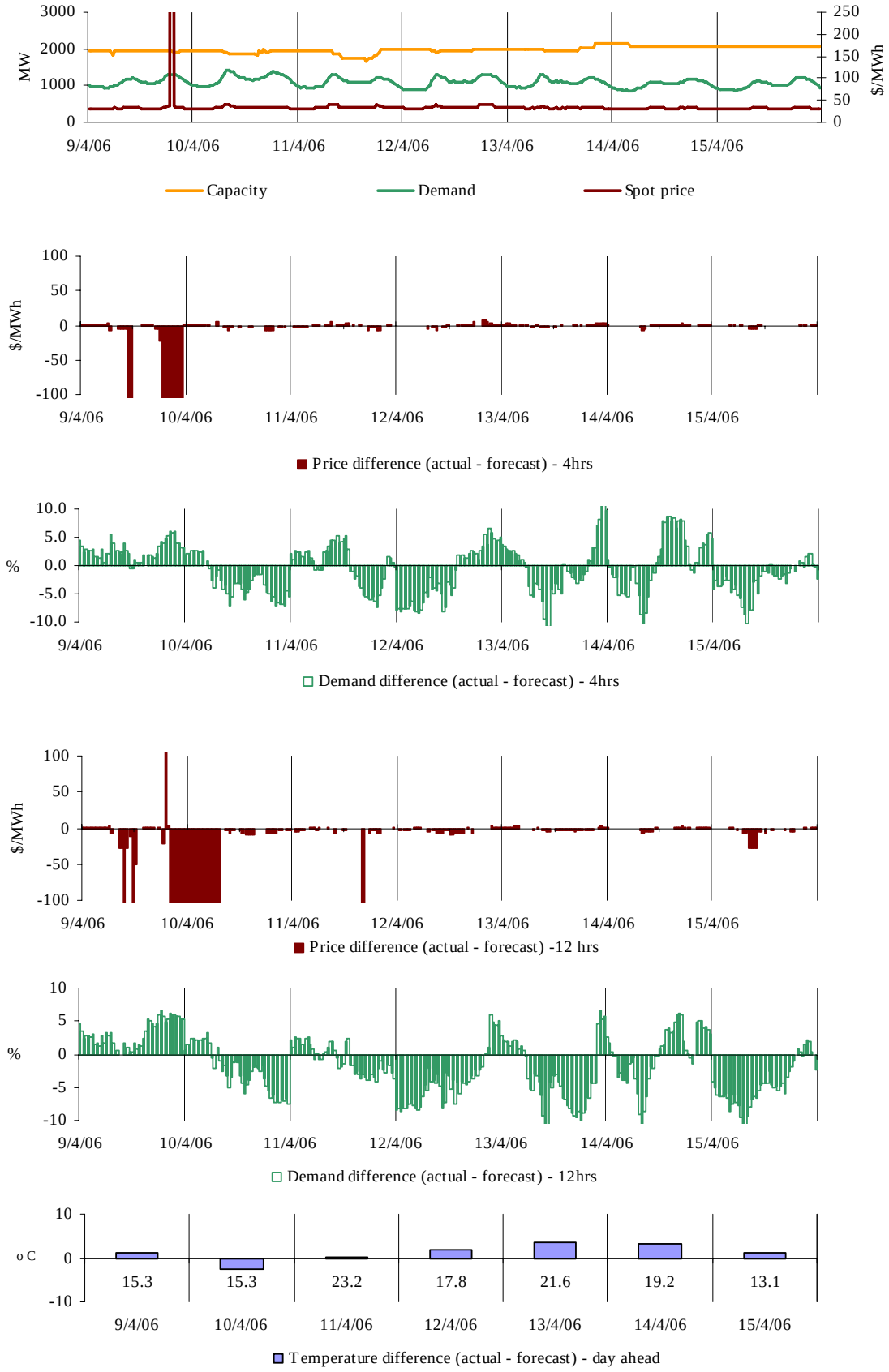
Monday, 10 April

9:30 am	Actual	4 hr forecast	12 hr forecast
Price ($/MWh)	1734.09	38.00	30.70
Demand (MW)	1431	1452	1502
Available capacity (MW)	2059	2107	2107

Conditions at the time saw demand and available capacity slightly lower than forecast. Prices at the time were aligned with Victoria, with the 5-minute despatch price peaking at $9900/MWh at 9.25am.

There was no significant rebidding.

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



There was one occasion in Tasmania where the spot price was greater than three times the weekly average price of $45/MWh. This occurred on Sunday evening.

Sunday, 9 April

7:30 pm	Actual	4 hr forecast	12 hr forecast
Price ($/MWh)	3348.50	9900.00	33.00
Demand (MW)	1293	1243	1220
Available capacity (MW)	1956	1956	1956

Conditions at the time saw demand 50 MW higher than forecast four hours ahead. A planned network outage between Farrell and Sheffield, which was scheduled for between 6.30am and 7pm, saw a total of 600 MW of generation capacity on the west coast constrained to less than 65 MW in dispatch, and as low as zero in the market forecasts.

Generation offers across the region were aligned in anticipation of the completion of the outage at 7pm. Delays in the completion of the network outage saw the constraints continuing to affect the west coast generation into the 7.30pm trading interval. This led to a shortfall in lower priced capacity from 7.05 pm and 5-minute dispatch prices increased from $42/MWh at 7pm to $5000/MWh. A further 55 MW reduction in the availability of generation at Lemonthyme/Wilmot, following the loss of a unit, led to a 5-minute dispatch price of $9 900/MWh at 7.20pm

There was no significant rebidding.

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

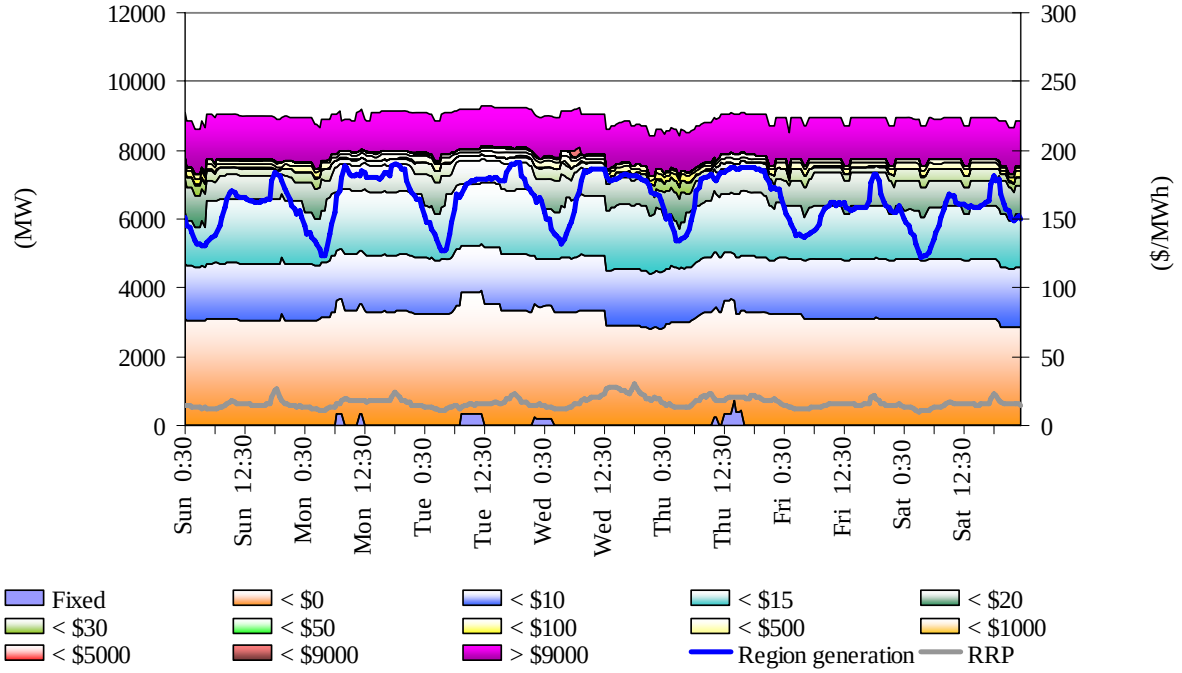


Figure 53: New South Wales closing bid prices, dispatched generation and spot price

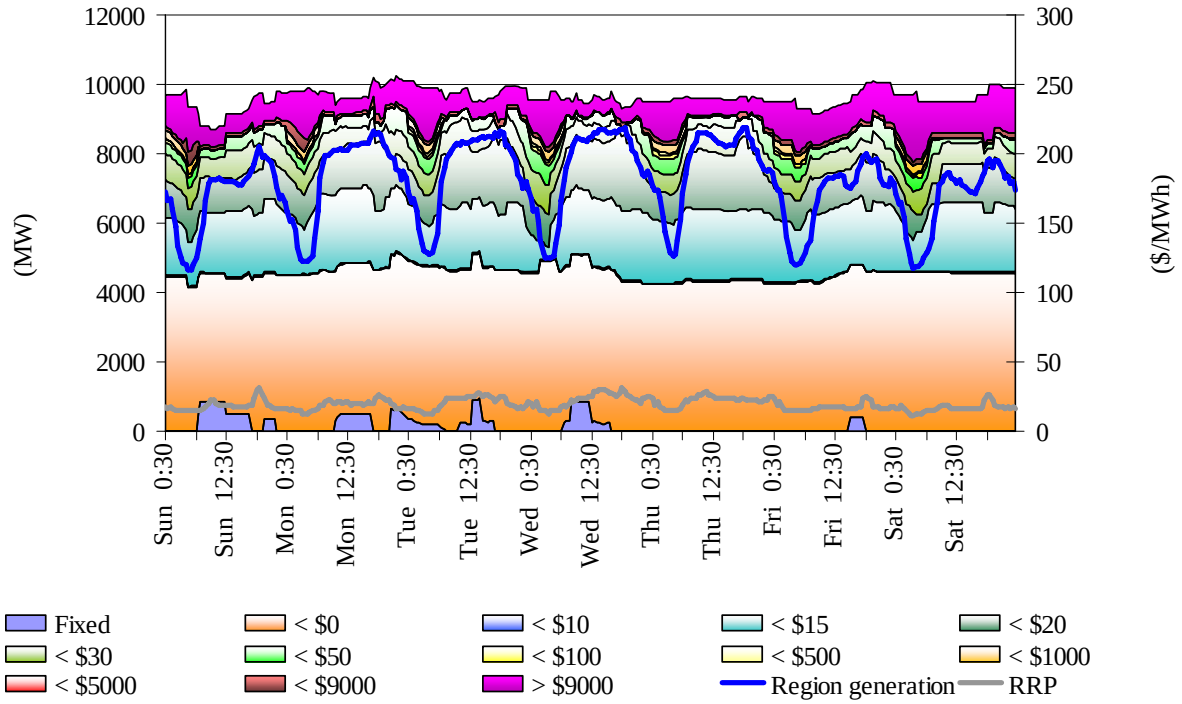


Figure 54: Victoria closing bid prices, dispatched generation and spot price

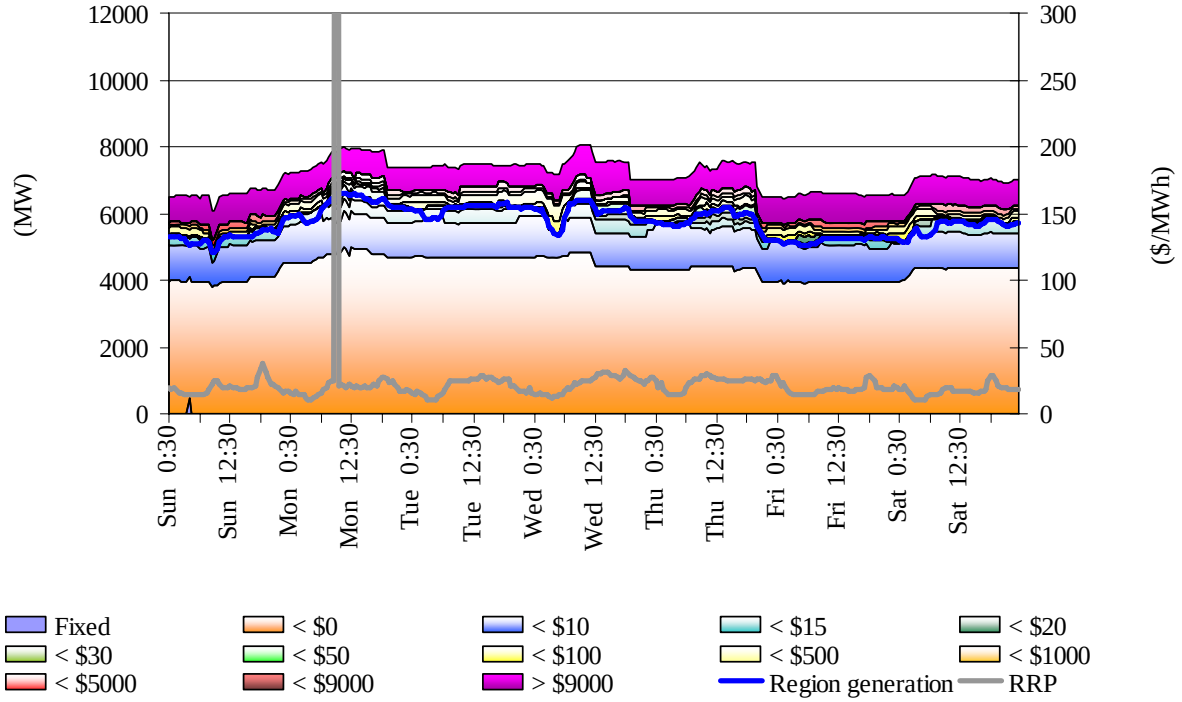


Figure 55: South Australia closing bid prices, dispatched generation and spot price

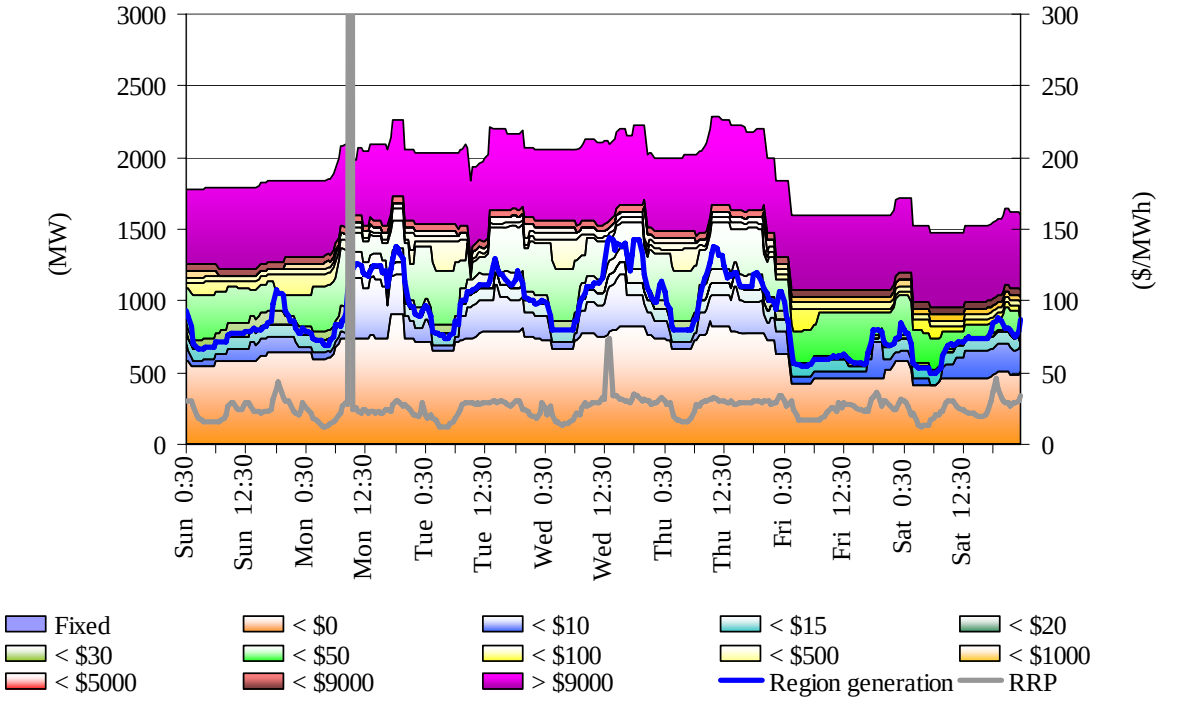
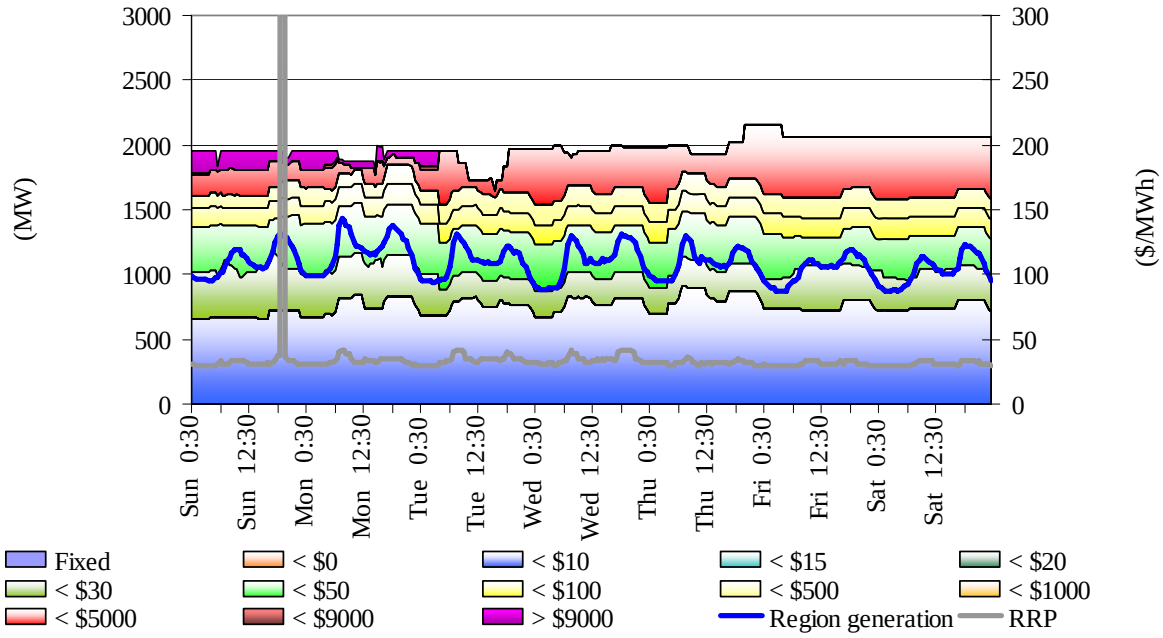


Figure 56: Tasmania closing bid prices, dispatched generation and spot price



Ancillary service market

The total cost of ancillary services on the mainland for the week was $395 000 or 0.5 per cent of the total turnover in the energy market in those regions. Figure 57 summarises the volume weighted average prices and costs for the eight frequency control ancillary services across the interconnected regions.

Figure 57: frequency control ancillary service prices and costs

	Raise 6 sec	Raise 60 sec	Raise 5 min	Raise reg	Lower 6 sec	Lower 60 sec	Lower 5 min	Lower reg
Last week	2.78	0.91	1.46	1.16	0.31	0.31	1.08	1.84
Previous week	1.52	0.72	1.56	1.58	0.21	0.29	0.65	1.83
Last quarter	1.76	0.73	1.15	1.54	0.39	2.28	5.00	1.93
Market Cost ($1000s)	148	49	99	25	3	3	27	40
% of energy market	0.20%	0.06%	0.13%	0.03%	0.00%	0.00%	0.04%	0.05%

The total cost of ancillary services in Tasmania for the week was $58 000 or 1 per cent of the total turnover in the energy market in Tasmania. There was insufficient raise regulation available on Sunday night for a single dispatch interval as a result of a unit trip and the network outage between Farrell and Sheffield. 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	0.15	0.10	0.10	4.93	0.44	0.10	0.10	0.10
Previous week	2.11	0.12	0.23	0.17	0.26	0.10	0.10	0.11
Last quarter	7.89	1.05	1.05	1.58	4.43	1.06	1.06	1.97
Market Cost ($1000s)	1	1	1	42	6	3	3	1
% of energy market	0.01%	0.01%	0.01%	0.51%	0.08%	0.04%	0.03%	0.01%

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

Figure 59: daily frequency control ancillary service costs

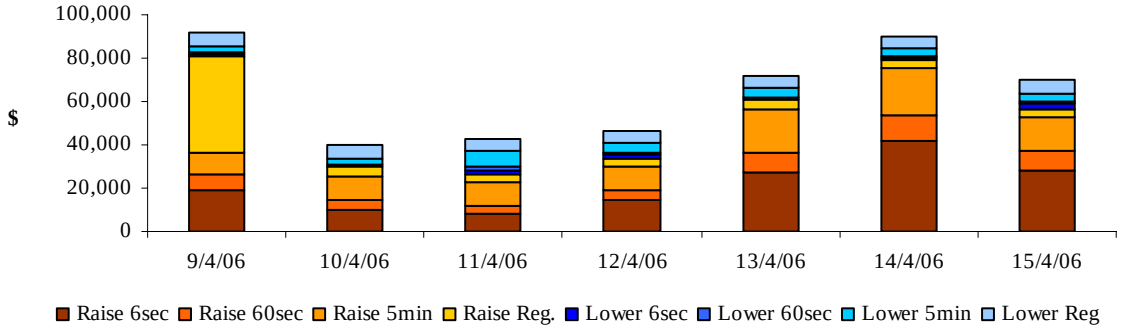
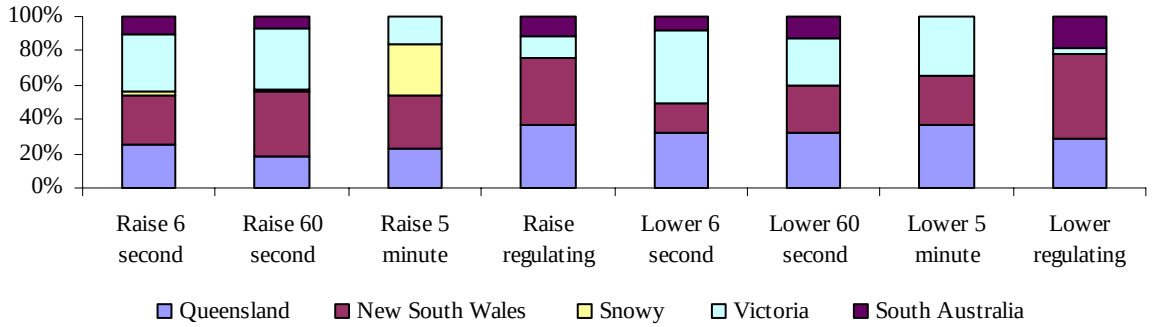


Figure 60 shows the contribution, on a percentage basis, that frequency control ancillary service providers are utilised (in each mainland region) to satisfy the total requirement for each service.

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

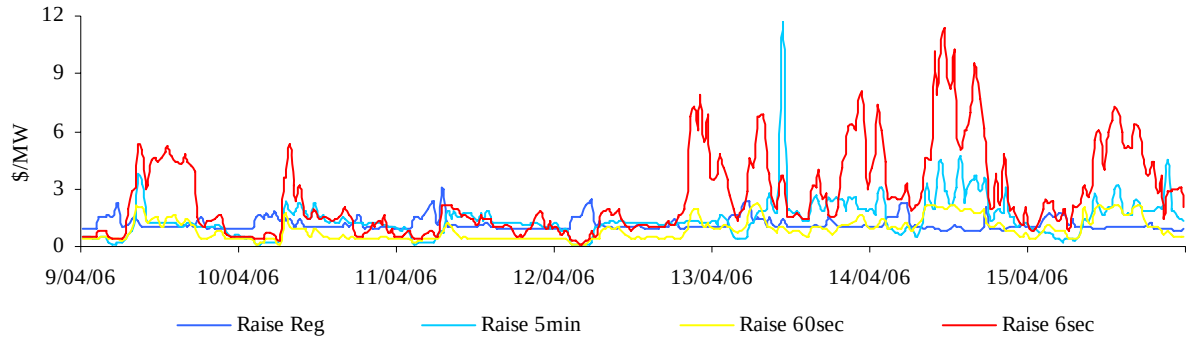


Figure 61A: prices for raise services - Tasmania

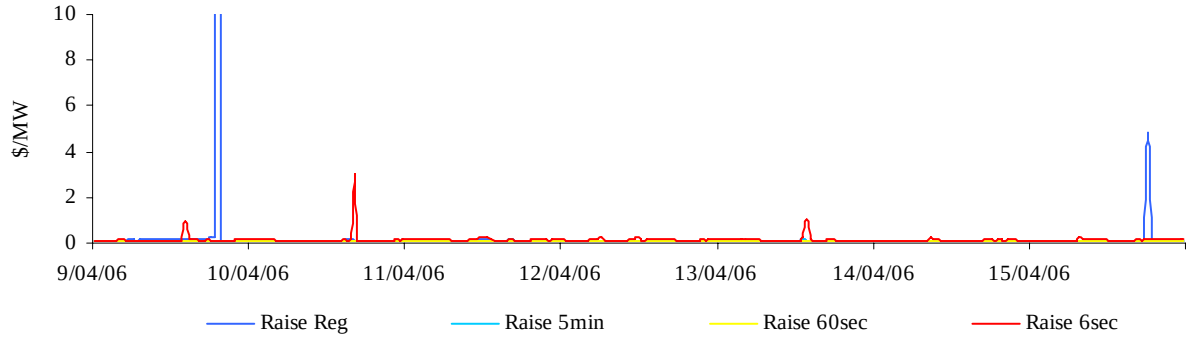


Figure 62: prices for lower services

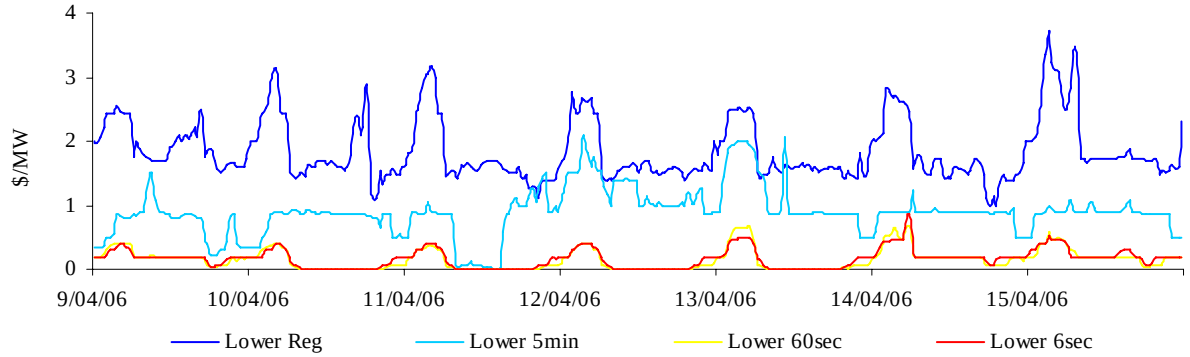
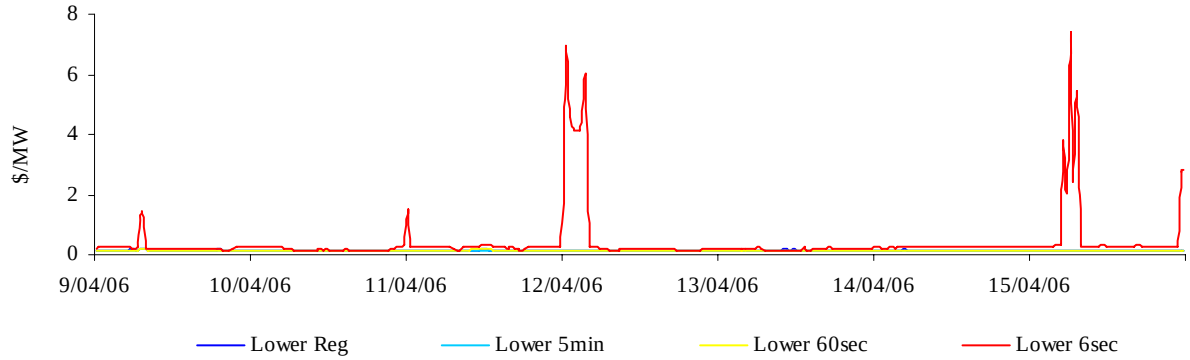


Figure 62A: prices for lower services - Tasmania



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

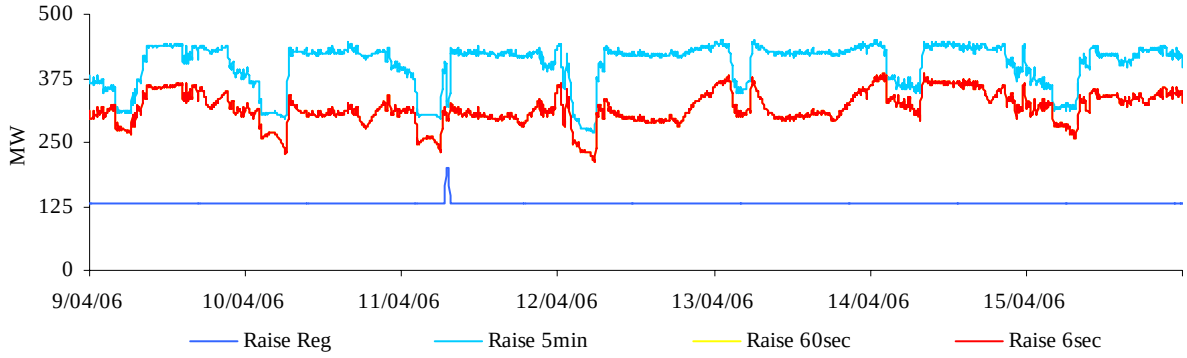


Figure 63A: raise requirements - Tasmania

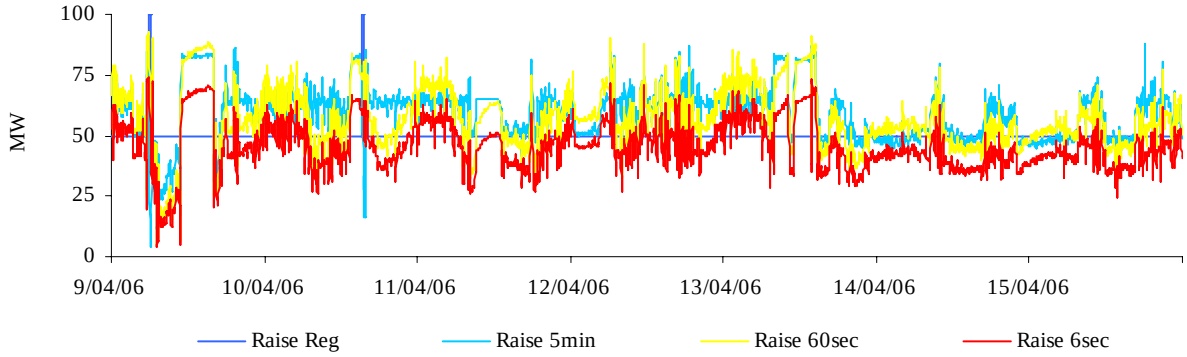


Figure 64: lower requirements

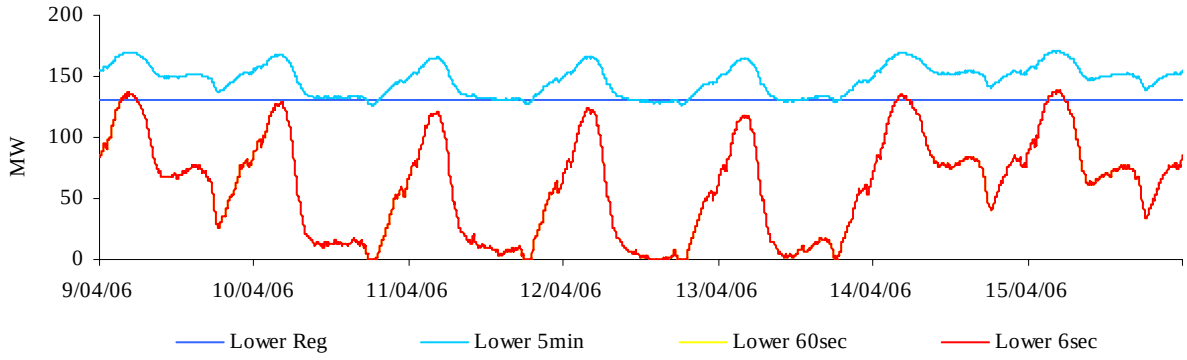
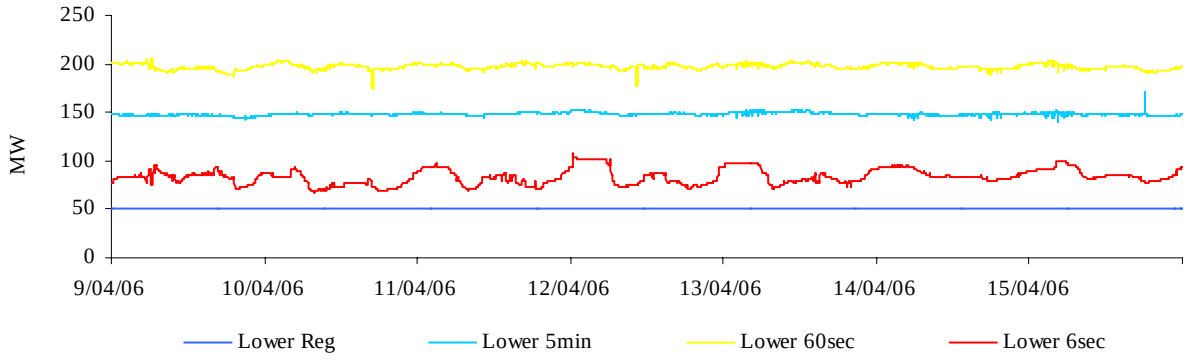


Figure 64A: lower requirements - Tasmania



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