Market analysis

21 – 27 AUGUST 2005

Prices in the southern regions were aligned for most of the week, averaging $28/MWh in New South Wales, $31/MWh in Victoria and $34/MWh in South Australia. Prices in Queensland averaged $19/MWh.

In Tasmania average spot prices increased by a quarter to $82/MWh. Coincident high prices in the energy market and in some of the ancillary services markets resulted from the scarce availability of some of these services. Water shortages affecting Gordon and Poatina, together with the outage of Bell Bay – all major providers of these services - contributed to the scarcity.

Turnover in the energy market for the mainland was $100 million, with a total cost of ancillary services for the week of around $270,000 or 0.3 per cent of turnover. Turnover in Tasmania was $17 million, with ancillary services totaling $710,000 or four per cent of turnover. Customers in that region paid almost $500,000 for those services.

Demand forecasts produced 4 and 12 hours ahead varied from actual by more than 5 per cent in a third of all trading intervals in South Australia and one quarter of all trading intervals in Tasmania. This compares with less than 9 per cent in the other regions. Significant variations between forecast and actual prices occurred in 77 or 23 per cent of all trading intervals.

Energy prices

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

Figure 1: volume weighted average spot price for energy market ($/MWh)

	QLD	NSW	VIC	SA	TAS
Last week	19	28	31	34	82
Previous week	20	24	26	30	65
Same quarter last year	27	31	28	36	-
Financial year to date	20	28	30	35	115
% change from previous week	▼3%	▲18%	▲20%	▲14%	▲26%
% change from same quarter last year	▼28%	▼10%	▲9%	▼6%	-
% change from last financial year	▼22%	▼15%	▲5%	▼11%	-

Figure 2: national demand and spot prices

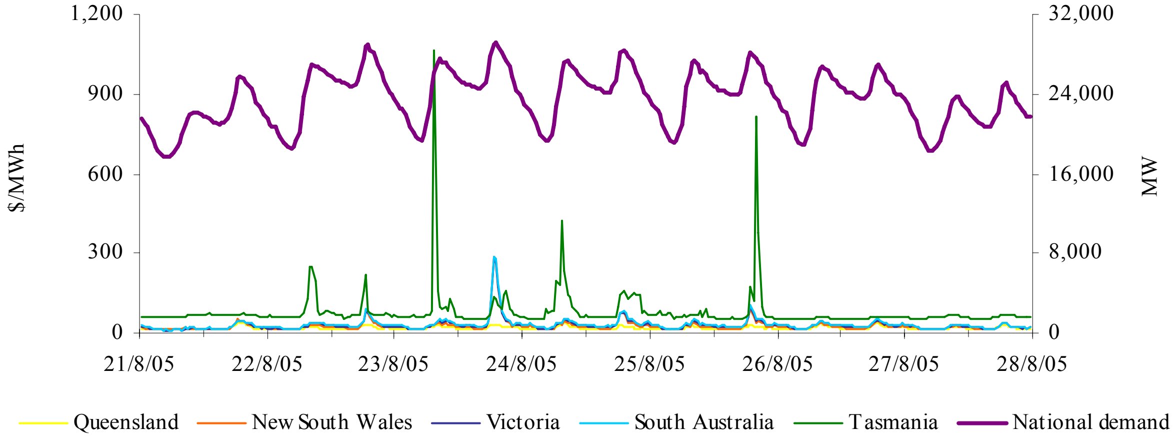


Figure 3: volatility index during peak periods

	QLD	NSW	VIC	SA	TAS
Last week	0.61	0.97	0.87	0.79	1.39
Previous week	0.65	0.94	0.97	0.89	0.19
Same quarter last year	0.64	0.74	0.71	0.56	-

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

Figure 4: Queensland

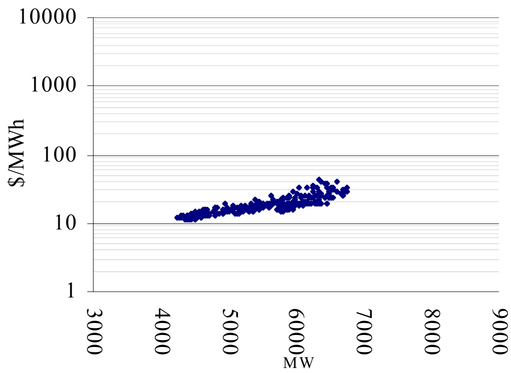


Figure 5: New South Wales

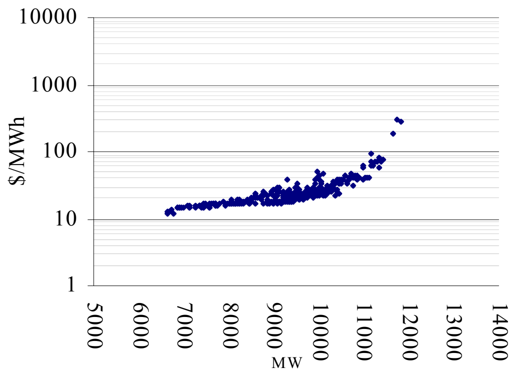


Figure 6: Victoria

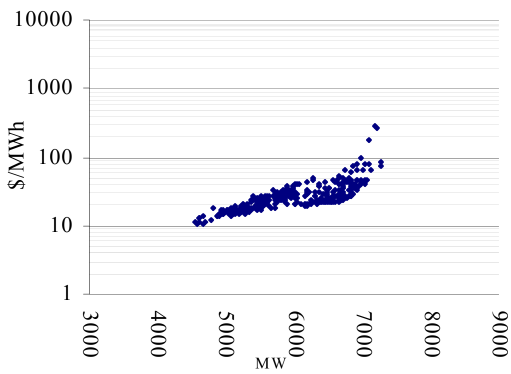


Figure 7: South Australia

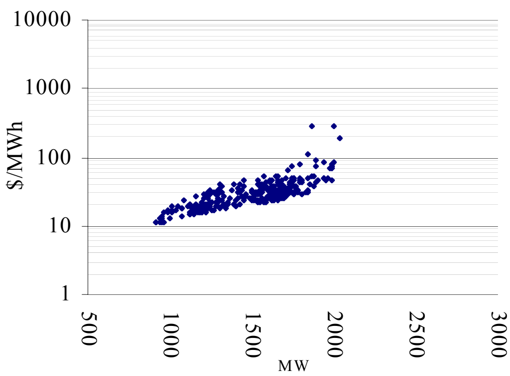
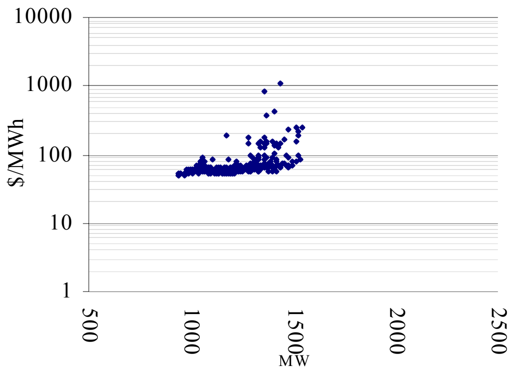


Figure 8: Tasmania



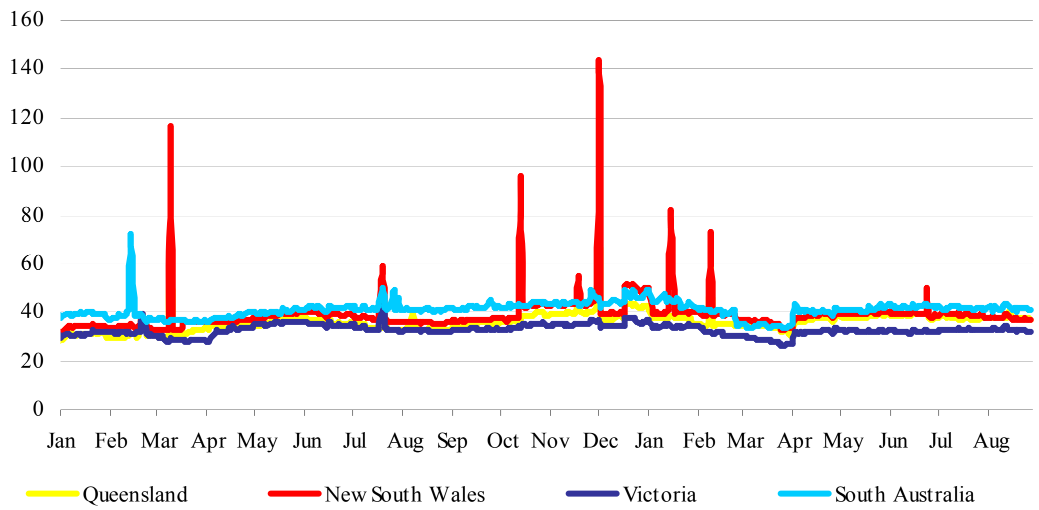
The maximum spot price in New South Wales, Victoria and South Australia around $290/MWh all occurred at 6.30pm on Tuesday. The maximum spot price in Queensland of $42/MWh occurred on Sunday evening. In Tasmania, the spot price reached $1,064/MWh on Tuesday morning.

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	37.56	37.55	37.44	37.44	36.89
New South Wales	37.21	37.68	36.99	36.83	36.69
Victoria	32.78	32.97	32.29	32.18	32.04
South Australia	42.01	41.85	41.47	41.09	40.67

Figure 10: d-cyphaTrade WEPI



Reserve

There were no low reserve conditions forecast throughout the week. Figures 11 to 14 show spot price, net imports and limits at the time of weekly maximum demand.

Figures 11 to 14: spot price, net import and limit at time of weekly maximum demand

Figure 11: Queensland

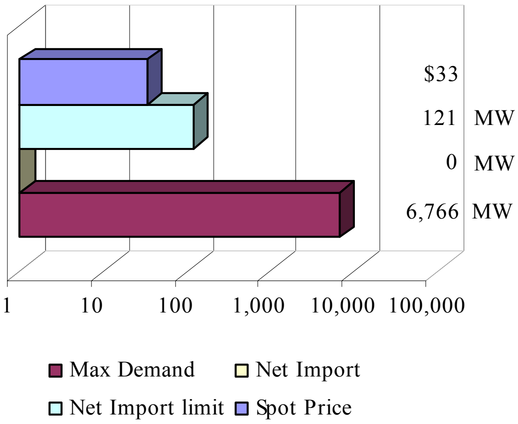


Figure 12: New South Wales

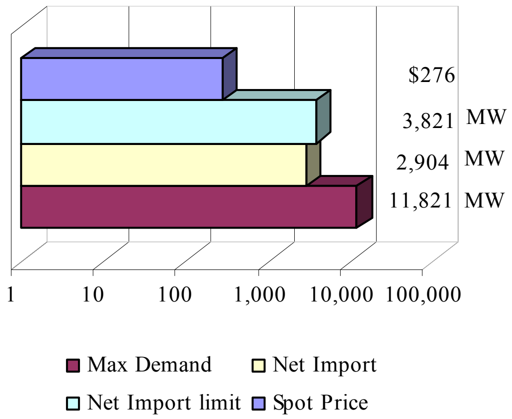


Figure 13: Victoria

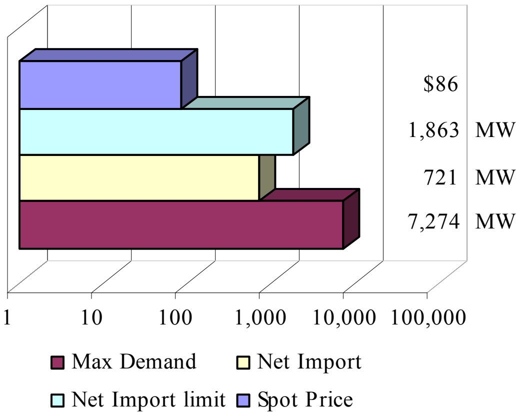
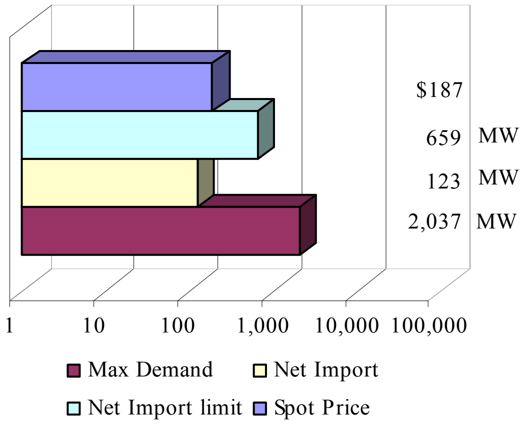


Figure 14: South Australia



In Tasmania, the demand reached a maximum of 1,540MW at 8.30am on Monday. The spot price at the time was $246/MWh.

Price variations

There were 77 trading intervals where significant variations between forecast and actual prices occurred, calculated 4 and 12 hours ahead of despatch. Figures 15 to 18 set out the correlation between the actual price and demand and those forecast. The information is presented in terms of the percentage difference from actual. Price differences beyond 200 per cent have been capped.

Figure 15: Queensland

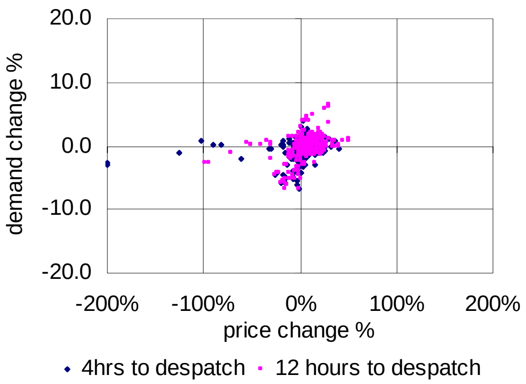


Figure 16: New South Wales

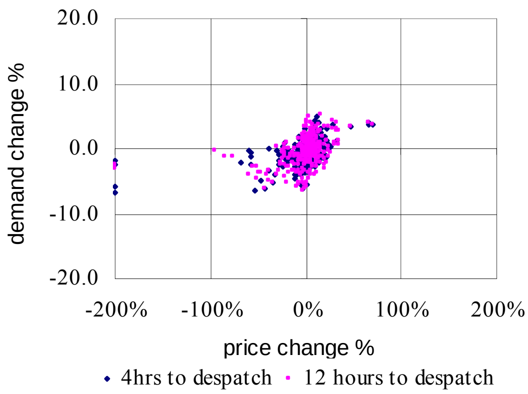


Figure 17: Victoria

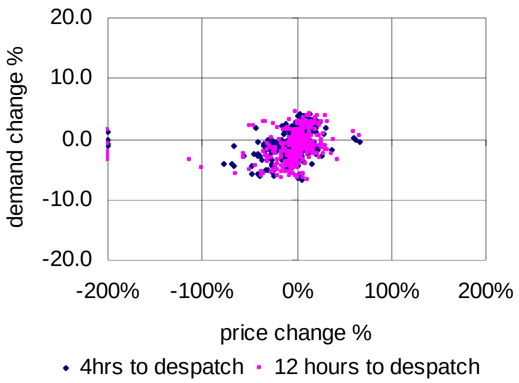


Figure 18: South Australia

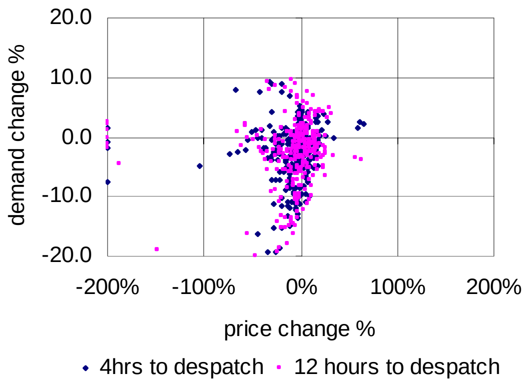


Figure 19: Tasmania

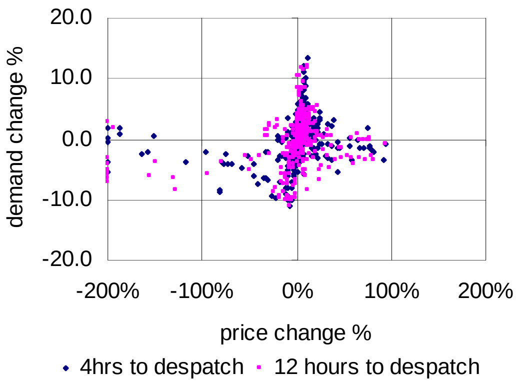


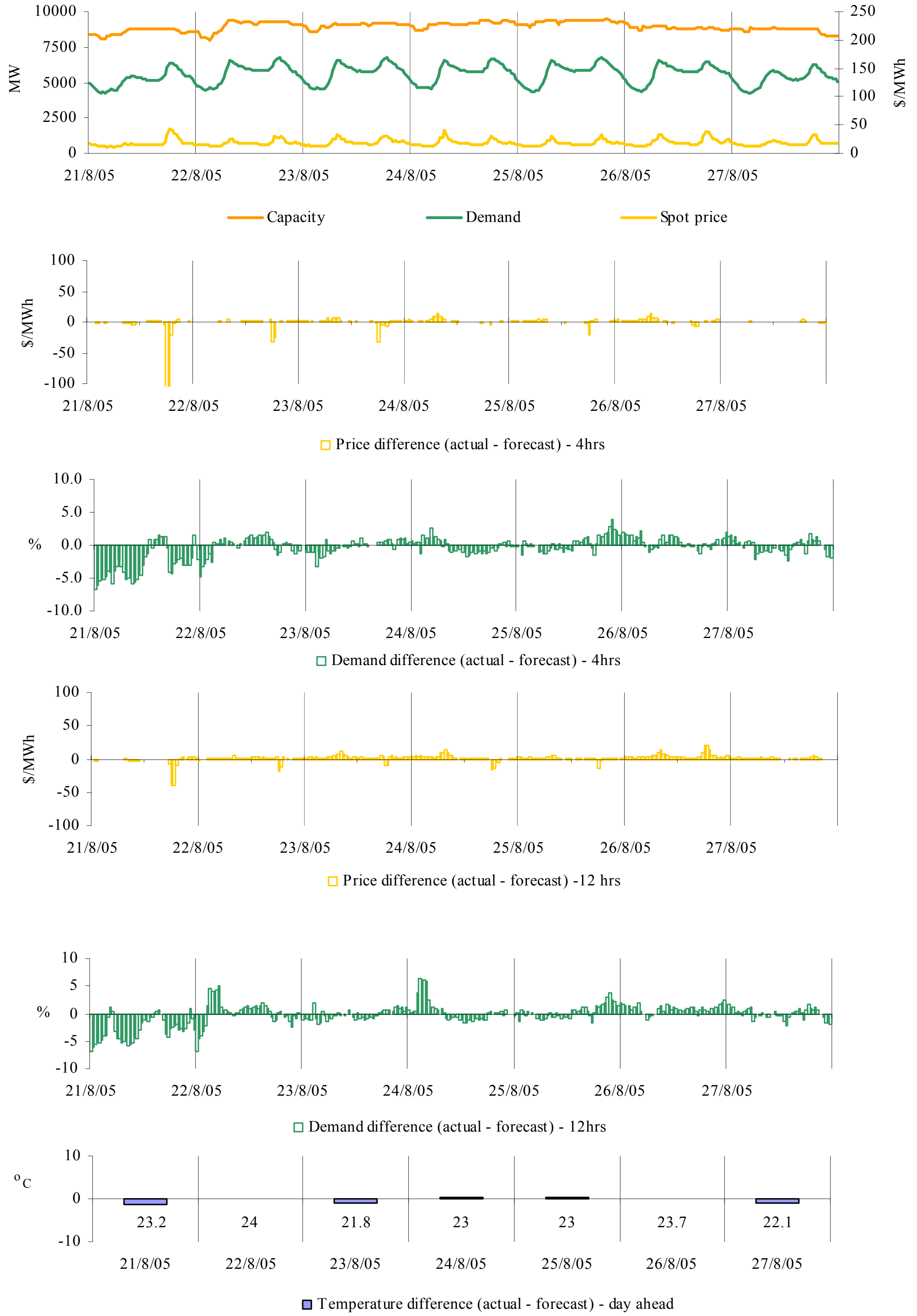
Figure 20 summarises the number and most probable reason for variations between forecast and actual prices.

Figure 20: reasons for variations between forecast and actual prices

Price and demand

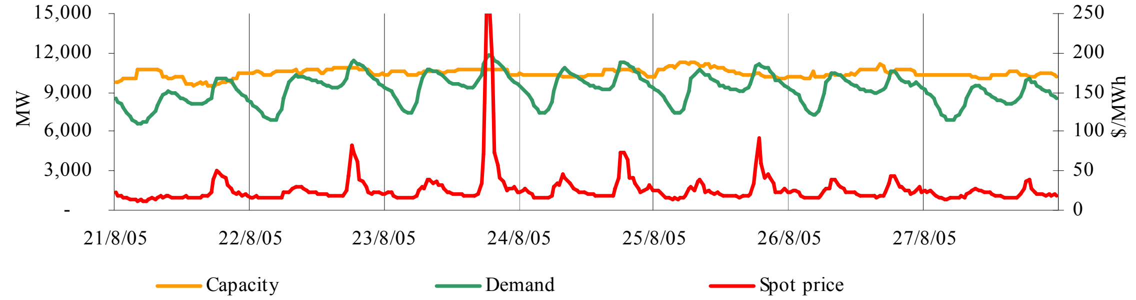
Figures 21 - 50 set out details of spot prices and demand on a regional basis. They include the actual spot price and demand outcomes and difference graphs both four and twelve hours ahead of despatch on a daily basis. The differences between the maximum temperature and the temperature forecast at around 6.00 pm the day before are also included. Figures 51 - 55 set out, for each region, the extent of capacity offered into the market within a series of price thresholds. Actual price and generation despatched in a region are overlaid.

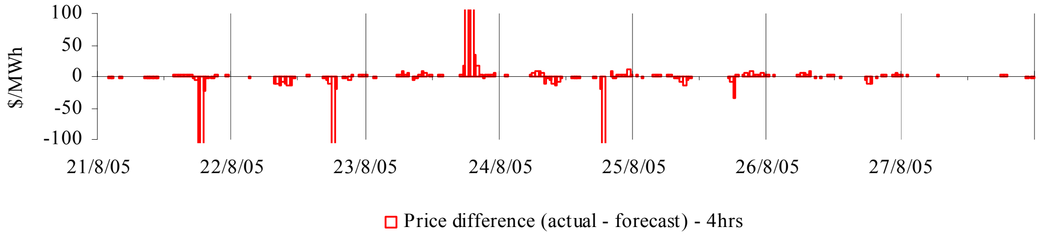
Figures 21-26: Queensland actual spot price, demand and forecast differences

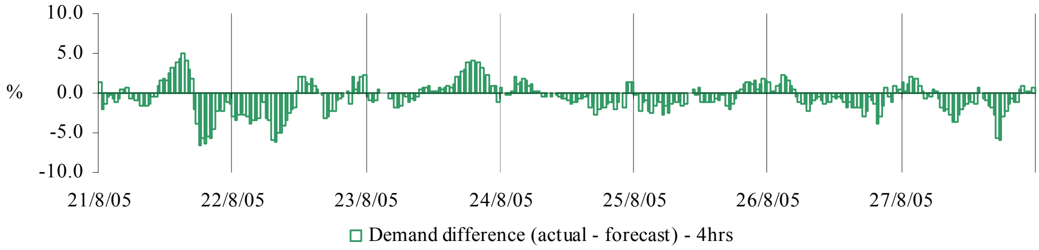


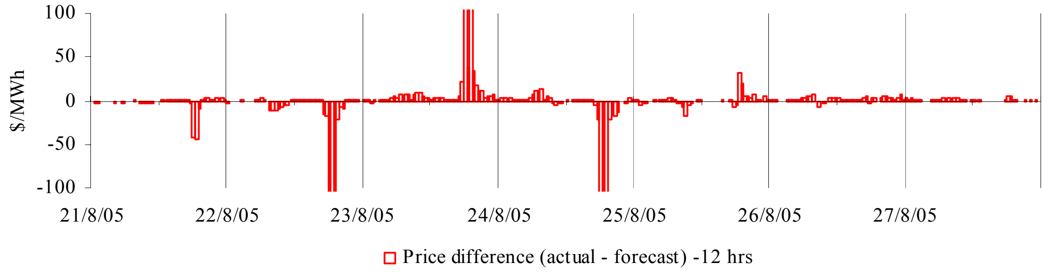
There were no occasions in Queensland where the spot price was greater than three times the weekly average price of $19/MWh.

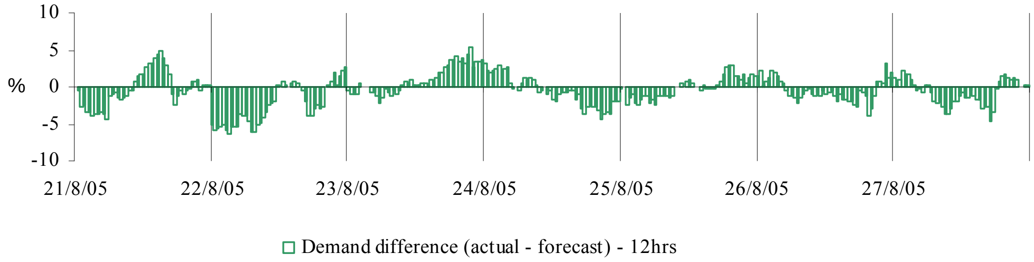
Figures 27-32 New South Wales actual spot price, demand and forecast differences

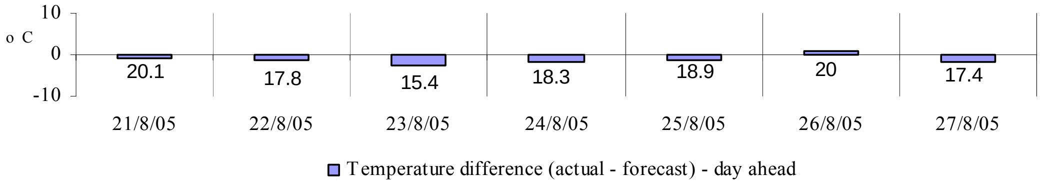












There were 4 occasions in New South Wales where the spot price was greater than three times the weekly average price of $28/MWh. These occurred between 6.30pm and 7.30pm on Tuesday and at 7pm on Thursday.

Tuesday, 23 August

6:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	290.51	88.24	88.83
Demand (MW)	11,741	11,297	11,298
Available capacity (MW)	10,736	11,436	11,436
7:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	275.63	91.00	236.46
Demand (MW)	11,821	11,373	11,378
Available capacity (MW)	10,736	11,136	11,436
7:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	182.92	60.35	60.73
Demand (MW)	11,658	11,183	11,177
Available capacity (MW)	10,736	11,436	11,436

Conditions at the time saw demand as much as 450MW higher than that forecast four hours earlier. Prices were aligned across the southern regions throughout this period. Availability was as much as 700MW lower than forecast following rebids which delayed, and eventually cancelled, the return to service of unit 2 at Eraring. The rebid reason given was "Bid rearrangement due to delay in unit ER02 RTS". Around 400MW of capacity was rebid from prices above $8,000/MWh to prices of $17/MWh across Eraring units 3 and 4 and Shoalhaven in response. The rebid reasons given were 'Bid rearrangement due to delay in unit ER02 RTS" and "Bid rearrangement due to cancellation of unit ER02 RTS".

At 5.55pm, Macquarie Generation rebid 290MW of capacity from prices of $14/MWh to prices around $250/MWh. The rebid reason given was "RP/volume tradeoff – load expected to vary from forecast".

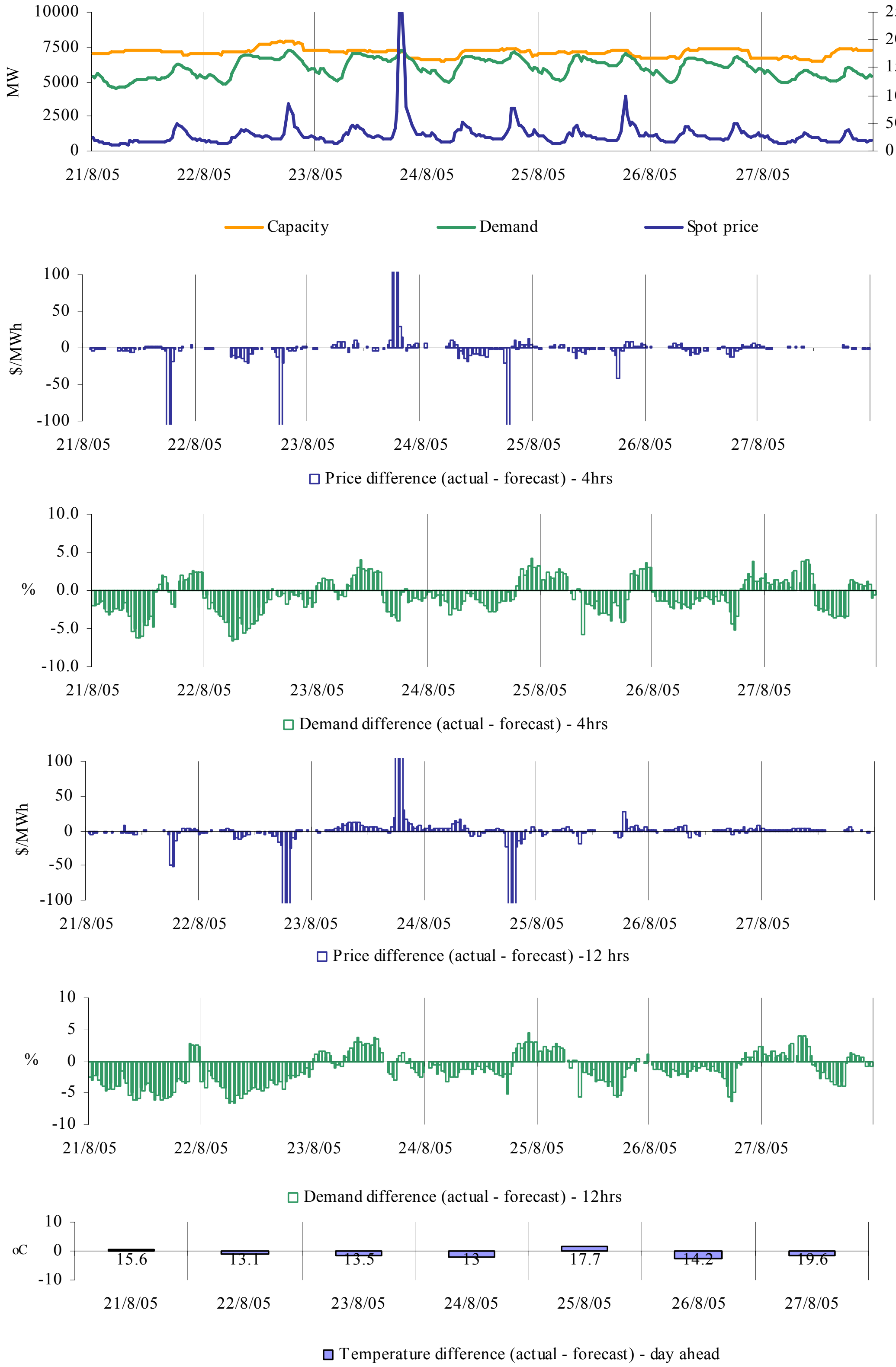
There was no other significant rebidding.

Thursday, 25 August

7:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	92.17	90.64	61.05
Demand (MW)	11,149	11,122	10,840
Available capacity (MW)	10,390	10,390	11,010

Conditions at the time saw price and demand close to the four hour ahead forecast. There was no significant rebidding.

Figures 33-38: Victoria actual spot price, demand and forecast differences



There were 4 occasions in Victoria where the spot price was greater than three times the weekly average price of $31/MWh. These occurred between 6.30pm and 7.30pm on Tuesday and at 7pm on Thursday.

Tuesday, 23 August

6:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	282.86	96.63	96.63
Demand (MW)	7,180	7,223	7,149
Available capacity (MW)	7,180	7,198	7,278
7:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	266.22	100.22	260.18
Demand (MW)	7,217	7,236	7,163
Available capacity (MW)	7,152	7,203	7,238
7:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	176.42	69.39	69.37
Demand (MW)	7,112	7,096	7,020
Available capacity (MW)	7,152	7,203	7,243

Conditions at the time saw demand close to forecast, with prices aligned across the southern regions. At 4.29pm over a number of rebids, International Power shifted 292MW of capacity from prices of around $400/MWh to zero at Valley Power, committing five units. The rebid reasons given were “Change in price forecasts” and “Change in actual prices”.

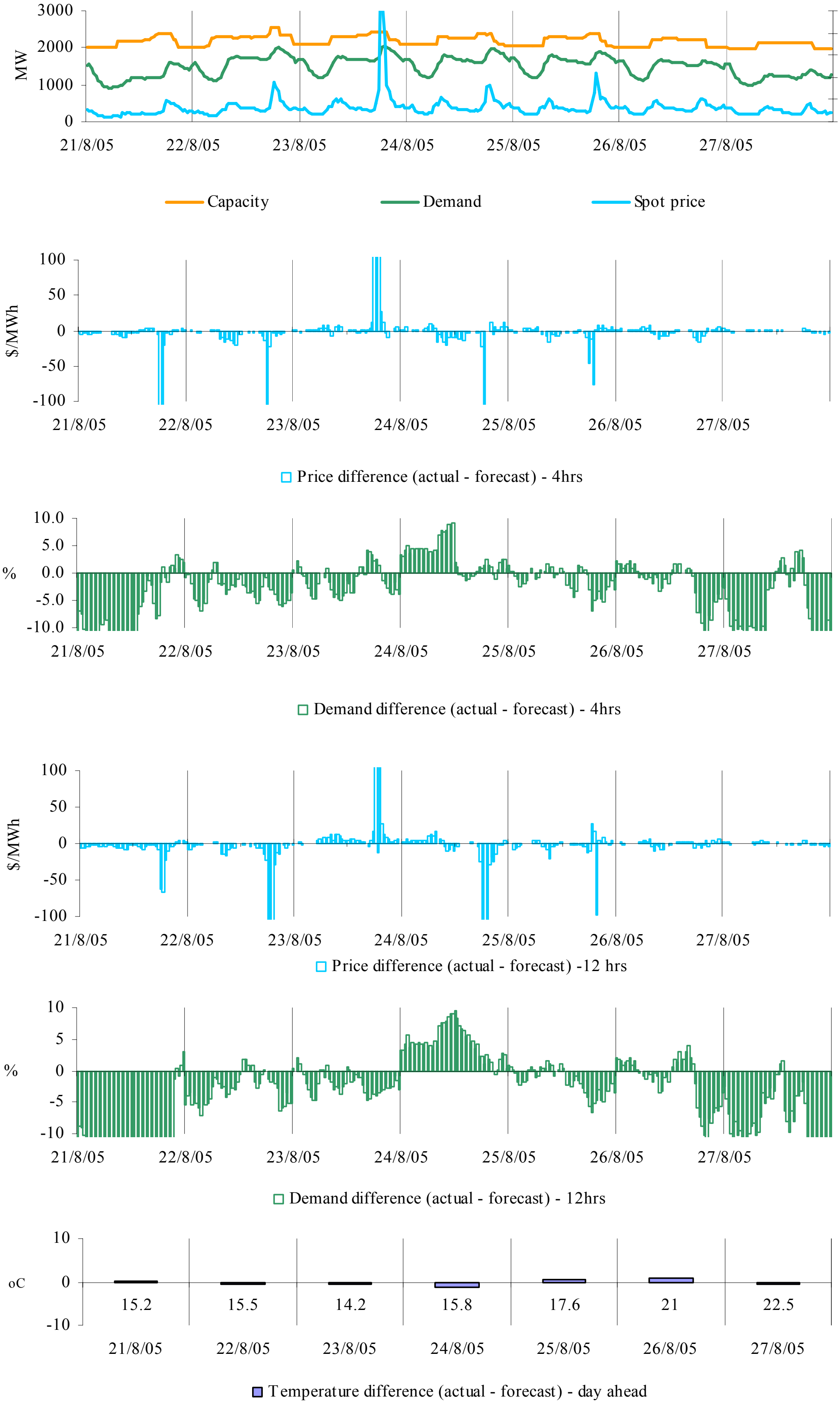
At 4.41pm, Ecogen rebid 465MW of capacity at Jeeralang from prices of $4,000/MWh or higher to prices ranging from $63/MWh to $570/MWh. From 6pm, over a number of rebids, as much as 330MW of capacity was rebid further to zero. The rebid reasons given were “Adj to unit commitment due to PD conditions” and “Market conditions price/vol tradeoff”. There was no other significant rebidding.

Thursday, 25 August

7:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	98.41	101.32	70.54
Demand (MW)	6,991	7,081	7,168
Available capacity (MW)	7,243	7,201	7,196

Conditions at the time saw demand 100MW lower than that forecast four hours earlier. Prices were generally as forecast and aligned across the southern regions. There was no significant rebidding.

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



There were 4 occasions in South Australia where the spot price was greater than three times the weekly average price of $34/MWh. These occurred between 6.30pm and 7.30pm on Tuesday and at 7pm on Thursday.

Tuesday, 23 August

6:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	285.83	100.67	104.30
Demand (MW)	1,869	1,828	1,939
Available capacity (MW)	2,421	2,431	2,415
7:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	278.27	108.19	291.00
Demand (MW)	1,997	1,946	2,075
Available capacity (MW)	2,418	2,431	2,415
7:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	187.02	76.92	79.63
Demand (MW)	2,037	2,007	2,105
Available capacity (MW)	2,421	2,431	2,415

Conditions at the time saw demand close to forecast, with prices aligned across the southern regions. Tru Energy rebid a total of 100MW of capacity at Torrens Island from prices of $150/MWh and $300/MWh to prices of $55/MWh or less over two rebids at 1.57pm and 5.13pm. The rebid reason given was “Fuel limits – Redist MW (Prepare pd for fuel profile)” and ‘Market conditions – Gen response to act vs PD cond”.

At 3.50pm, Origin Energy committed 96MW of capacity at Quarantine. This capacity had previously been priced at $9,000/MWh. The rebid reason given was ‘Est (N) change in PDS”.

At 5.48pm, AGL committed 30MW of capacity at Hallet. A further 20MW was rebid to zero at 6.05pm. This capacity had previously been priced above $9,000/MWh. The rebid reason given was “Predispatch: forecast price increase::increa”.

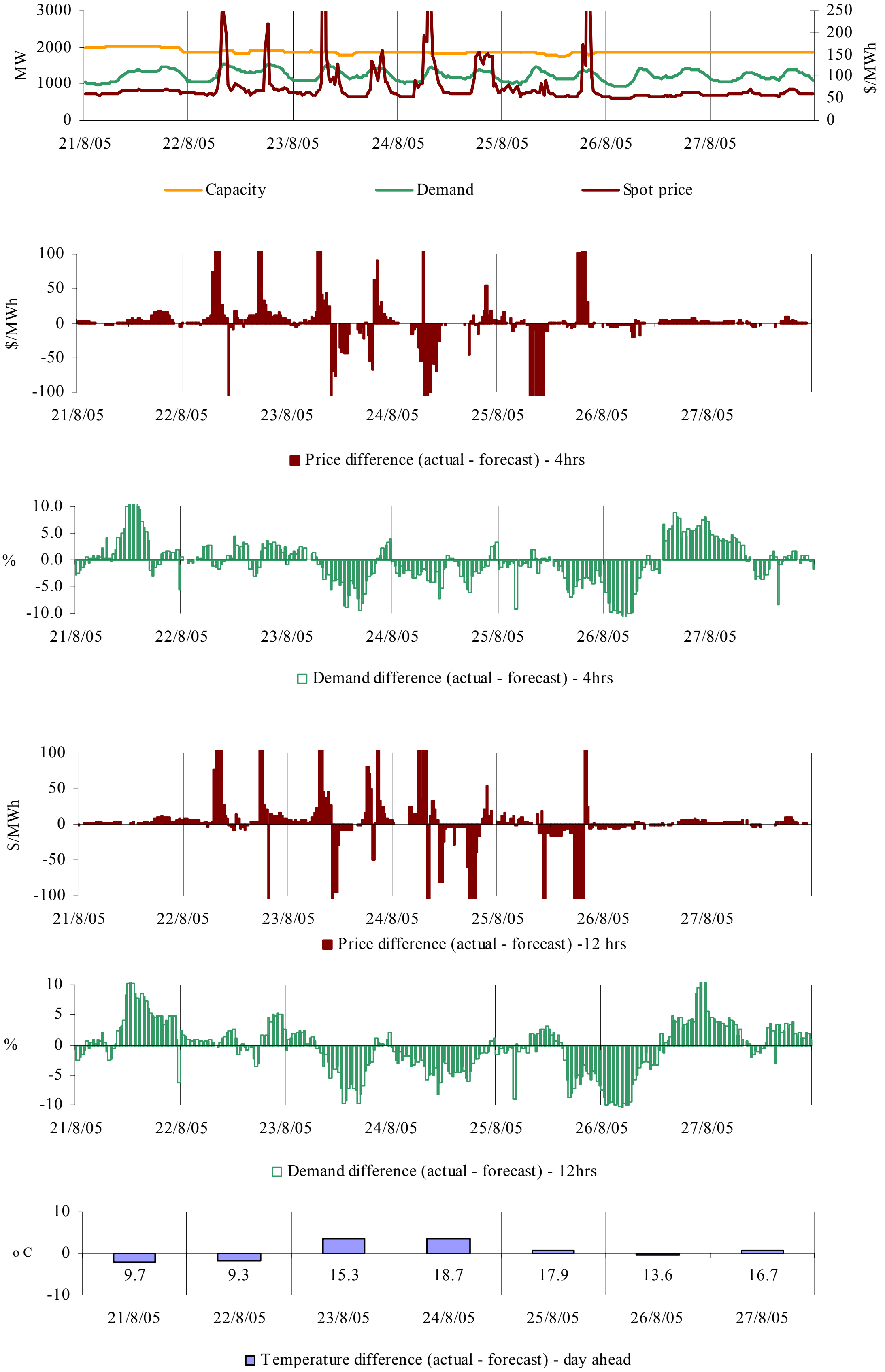
There was no other significant rebidding.

Thursday, 25 August

7:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	109.00	120.91	81.11
Demand (MW)	1,839	1,966	1,960
Available capacity (MW)	2,387	2,412	2,262

Conditions at the time saw demand 130MW lower than that forecast four hours earlier. Prices were generally as forecast and aligned across the southern regions. There was no significant rebidding.

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



There were 6 occasions in Tasmania where the spot price was greater than three times the weekly average price of $82/MWh. These occurred during the morning peaks on Monday, Tuesday and Wednesday, and on Thursday evening.

Monday, 22 August

8:00 am	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	245.70	57.05	55.16
Demand (MW)	1,514	1,529	1,509
Available capacity (MW)	1,910	1,910	1,910
8:30 am	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	245.70	57.05	54.80
Demand (MW)	1,540	1,560	1,540
Available capacity (MW)	1,910	1,910	1,910

Conditions at the time saw demand close to forecast. Up to 100MW of capacity at Gordon was not despatched for energy during this period despite being priced at less than $100/MWh. Gordon's offer profile in the lower 6 second ancillary services market restricted its level of despatch to below 120MW. There was no significant rebidding.

Tuesday, 23 August

7:30 am	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	1064.33	62.90	63.01
Demand (MW)	1,441	1,451	1,451
Available capacity (MW)	1,857	1,935	1,997

Conditions at the time saw demand close to forecast. Prices increased for three despatch intervals from around $160/MWh at 7.15am to around $1,000/MWh for two despatch intervals before peaking at around $3,700/MWh at 7.30am. Prices retuned to $160/MWh at 7.35am. At the time there was 85MW of capacity at Gordon priced at less than $100/MWh which was not despatched for energy. Again, the lower 6 second offer profile was limiting its despatch to below 120MW.

At the same time, the raise 6 second ancillary service price increased to more than $7,500/MW and the lower 6 second price reached $1,000/MW.

There was no significant rebidding.

Wednesday, 24 August

7:30 am	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	420.90	89.65	89.60
Demand (MW)	1,403	1,426	1,440
Available capacity (MW)	1,855	1,855	1,855

Conditions at the time saw demand close to forecast. The pool price spiked from $150/MWh to above $700/MWh for two despatch intervals at 7.25am. At the same time the price in the raise 6 second market spiked to similar levels.

Thursday, 25 August

8:00 pm	Actual	4 hr forecast	12 hr forecast
Price ($/MWh)	812.01	71.70	3756.69
Demand (MW)	1,356	1,401	1,427
Available capacity (MW)	1,830	1,855	1,855
8:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	380.26	71.70	71.70
Demand (MW)	1,366	1,393	1,412
Available capacity (MW)	1,804	1,855	1,855

Conditions at the time saw demand around 40MW lower than forecast. A planned outage at Trevallyn for the 7.30pm trading interval was extended by a further half hour at 7.29pm, reducing its availability by up to 70MW. At 7.52pm, the unit tripped from 30MW. All of this capacity was priced at $45/MWh. The rebid reasons given were “Trev outage extended”, “Trev availability change for the outage” and “Trev trip”.

A rebid at around 6pm at Gordon saw the enablement maximum reduced from 246MW to 135MW for the lower 6 second ancillary service, limiting its despatch in the energy market below 120MW. The rebid reason given was “Demand lower than forecast. As a result there was around 50MW of capacity at Gordon priced at less than $100/MWh which was not despatched for energy.

There was no other significant rebidding.

Figure 51: Queensland closing bid prices, despatched generation and spot price

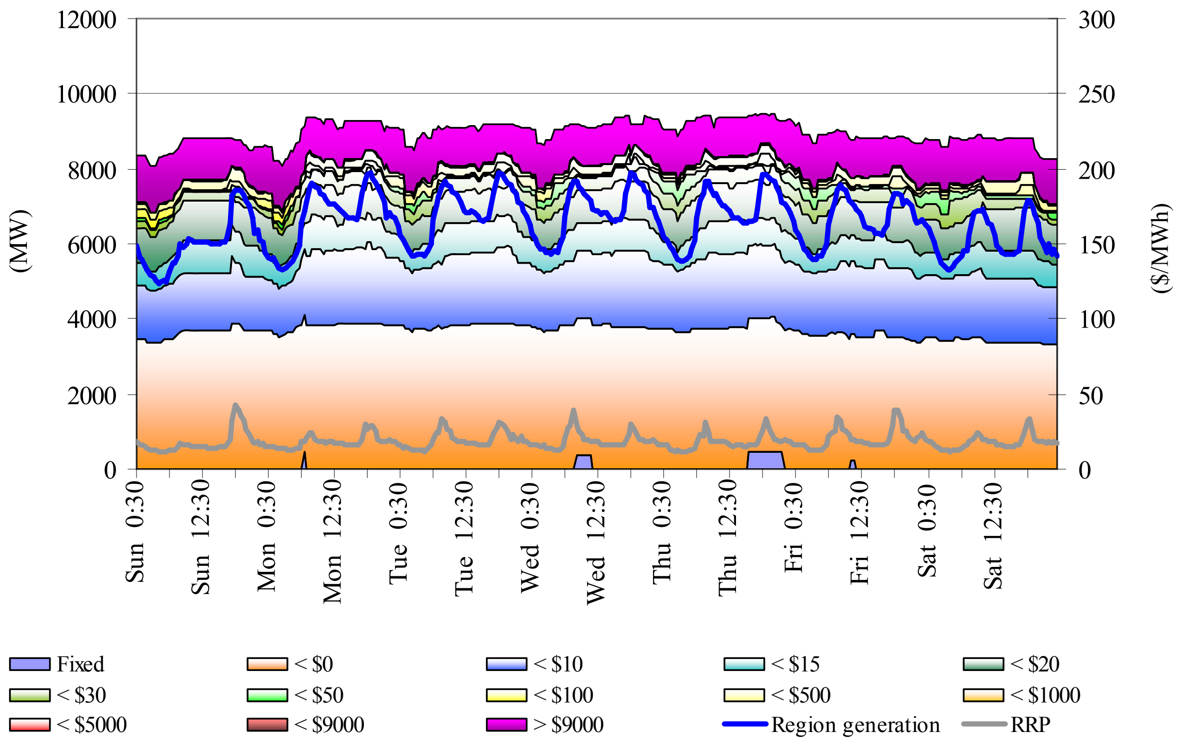


Figure 52: New South Wales closing bid prices, despatched generation and spot price

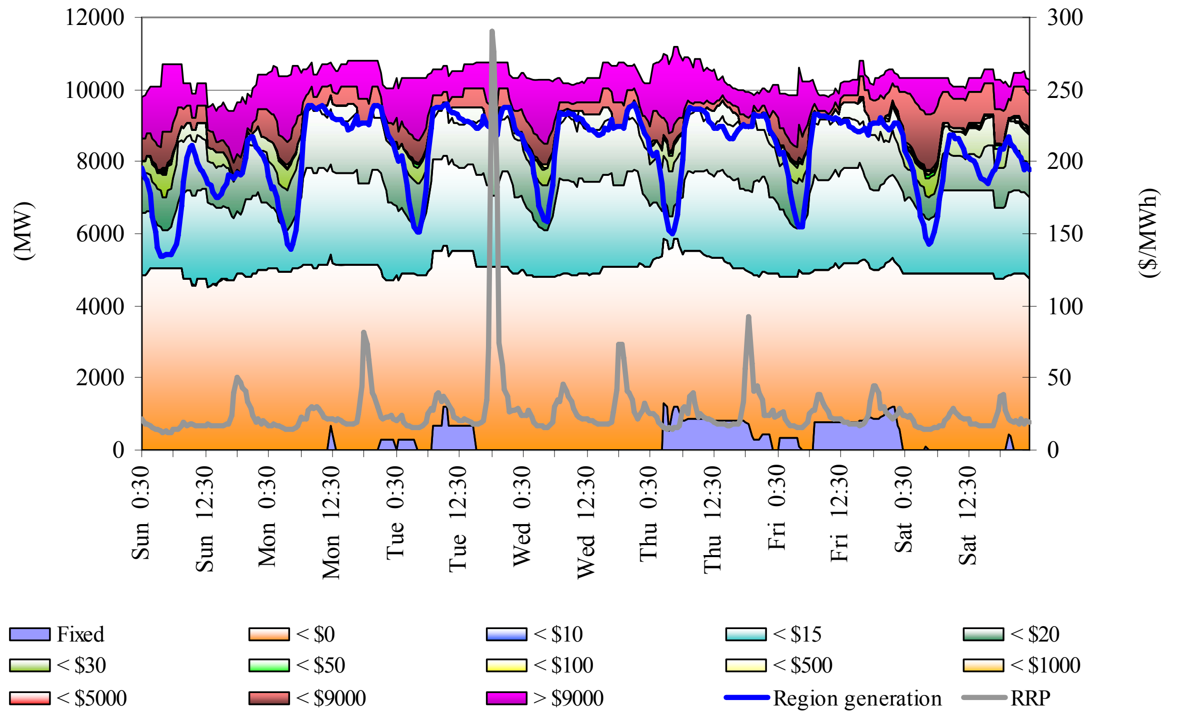


Figure 53: Victoria closing bid prices, despatched generation and spot price

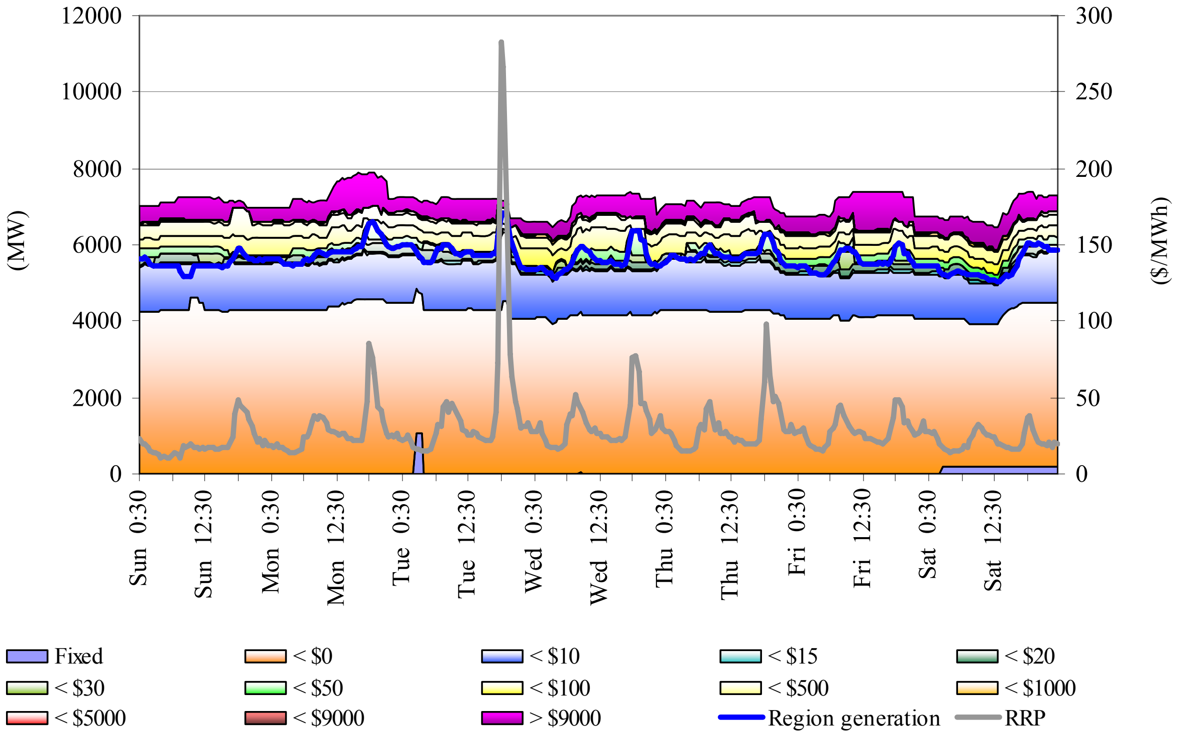


Figure 54: South Australia closing bid prices, despatched generation and spot price

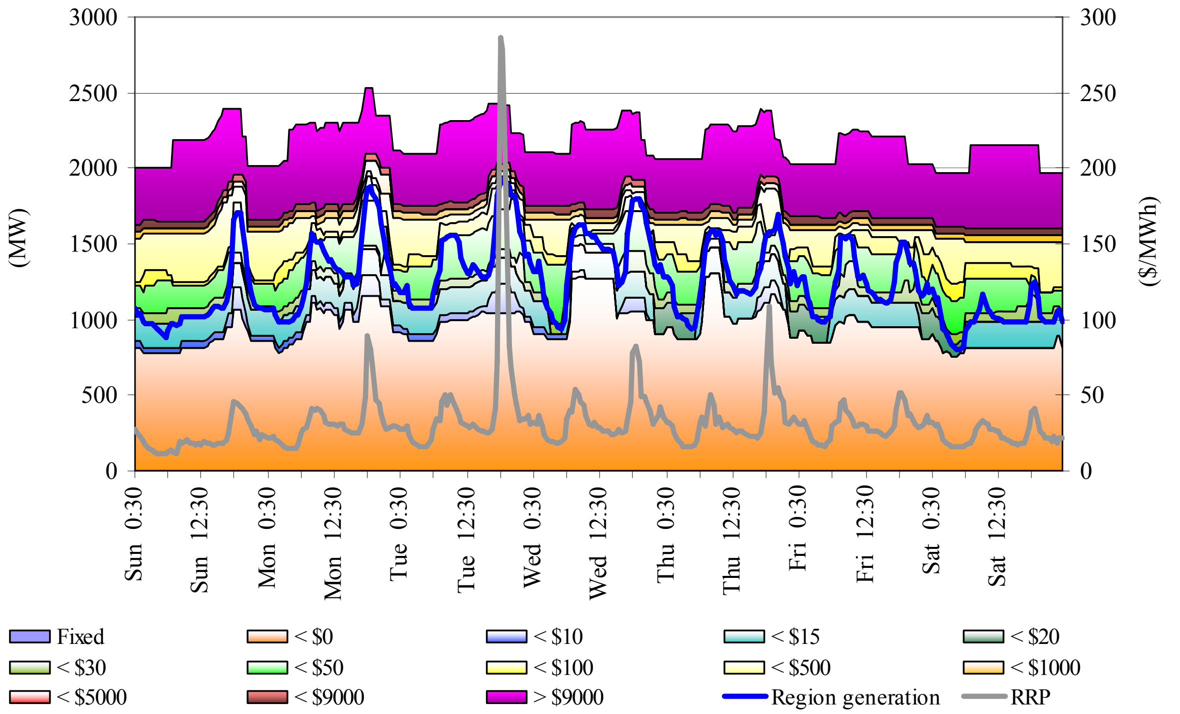
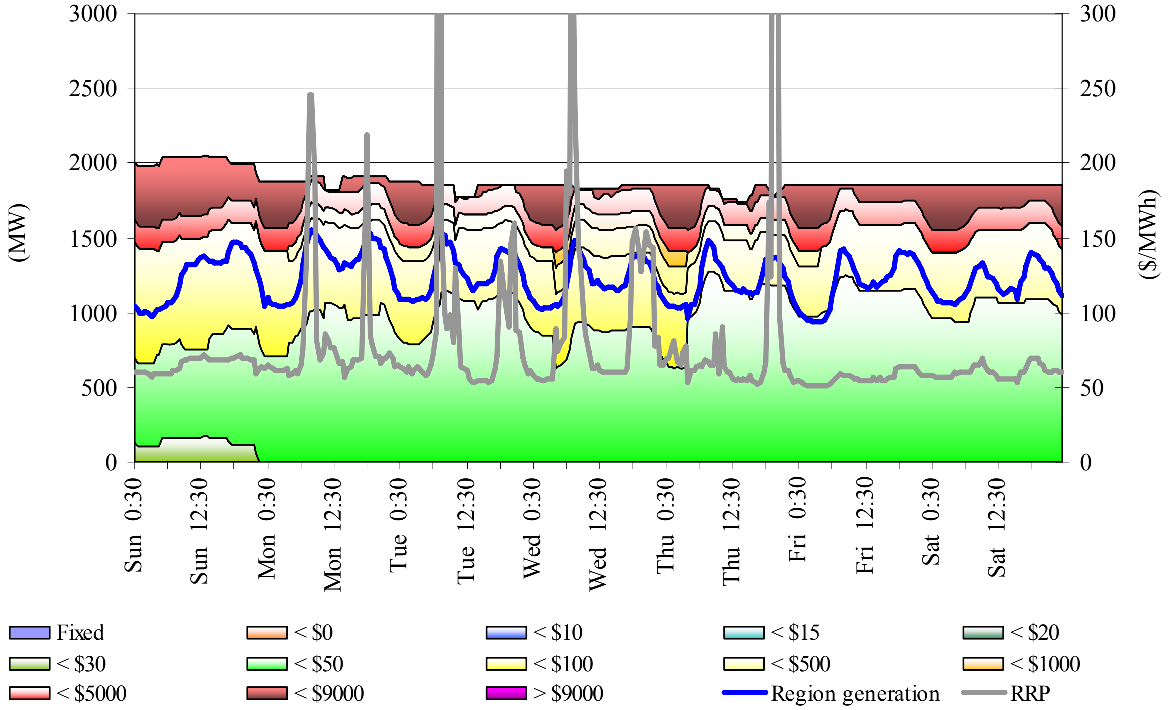


Figure 55: Tasmania closing bid prices, despatched generation and spot price



Ancillary service market

The total cost of ancillary services on the mainland for the week was $270,000 or 0.3 per cent of the total turnover in the energy market. Figure 56 summarises the volume weighted average prices and costs for the eight frequency control ancillary services across the interconnected regions.

Figure 56: volume weighted average frequency control ancillary service prices

	Raise 6 sec	Raise 60 sec	Raise 5 min	Raise reg	Lower 6 sec	Lower 60 sec	Lower 5 min	Lower reg
Last week ($)	1.43	0.69	0.98	1.36	0.16	0.12	1.16	1.58
Previous week($)	1.14	0.56	0.88	1.21	0.15	0.17	1.03	1.55
Last Quarter($)	2.43	0.81	0.99	1.07	0.23	0.96	2.96	1.51
Market Cost ($1000s)	$74	$35	$67	$30	$1	$1	$27	$35
% of energy market	0.07%	0.04%	0.07%	0.03%	0.00%	0.00%	0.03%	0.03%

In Tasmania ancillary services totaled $710,000 or four per cent of turnover. Customers in that region paid almost $500,000 for those services. The price for raise 6 second reached $10,000/MW on Thursday. The price for lower 6 second was also high on Thursday, spiking to $1,000/MW a number of times. The cost for lower 6 second totaled $400,000 – the third largest ever behind the separation events of December 2002 and March 2004. Figure 57 summarises the Tasmanian prices and costs.

Figure 57: volume weighted average frequency control ancillary service price 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 ($)	20.53	1.05	1.05	3.71	31.64	1.07	1.05	1.61
Previous week($)	1.43	1.05	1.06	1.22	3.81	1.08	1.05	1.09
Market Cost ($1000s)	$187	$10	$11	$32	$401	$31	$26	$14
% of energy market	1.41%	0.07%	0.08%	0.24%	3.01%	0.24%	0.19%	0.10%

Figure 58 shows the daily breakdown of cost for each frequency control ancillary service.

Figure 58: daily frequency control ancillary service costs

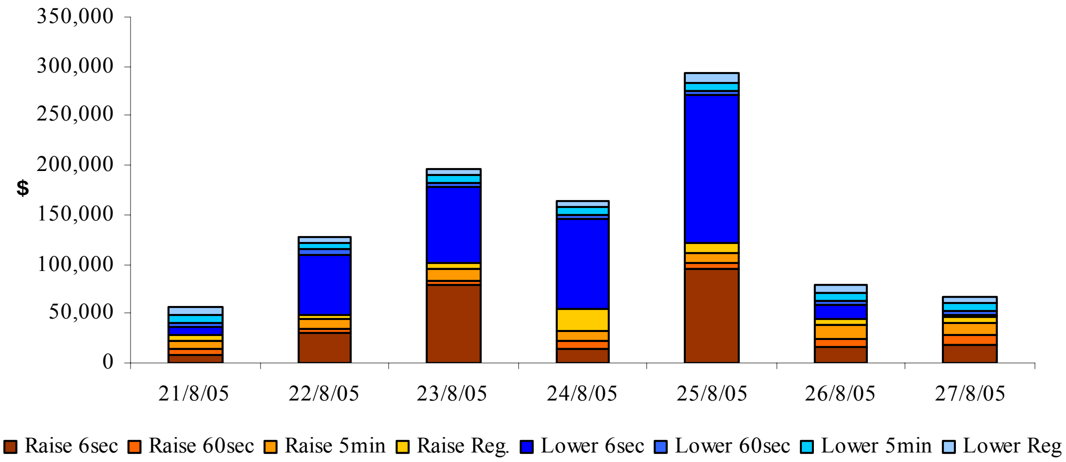
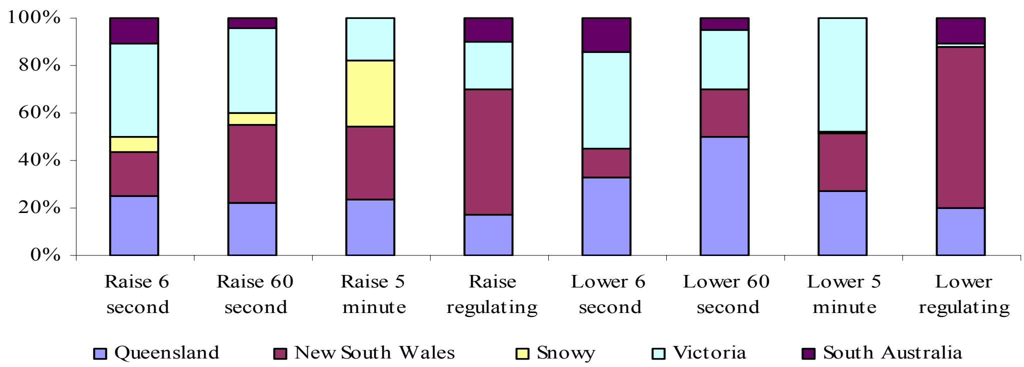


Figure 59 shows the regional weekly participation in each of the ancillary service markets on the mainland.

Figure 59: regional participation in ancillary services



Figures 60 and 61 show 30-minute prices for each of the ancillary services.

Figure 60: prices for raise services

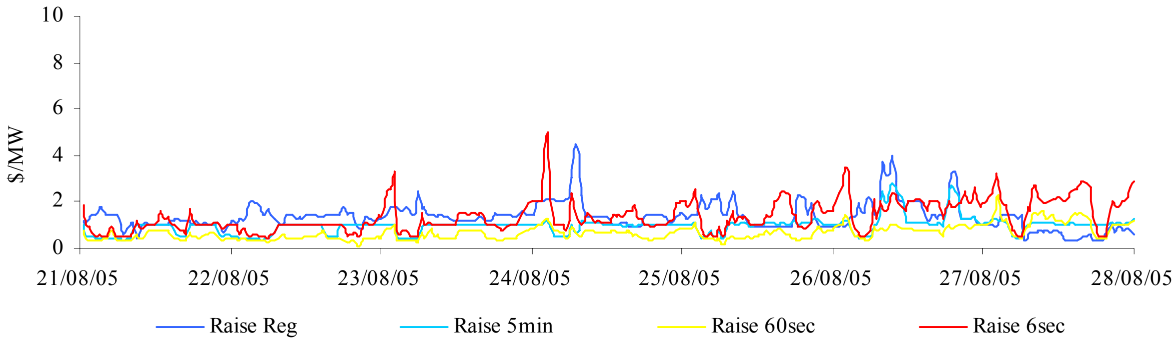


Figure 60A: prices for raise services - Tasmania

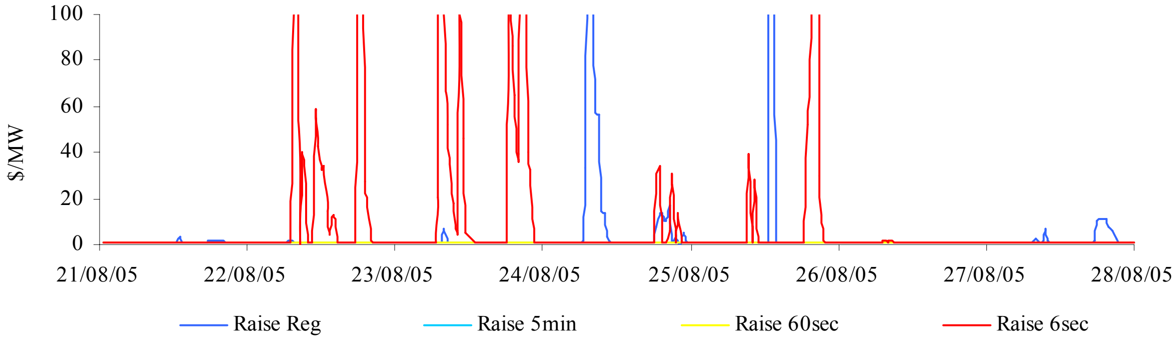


Figure 61: prices for lower services

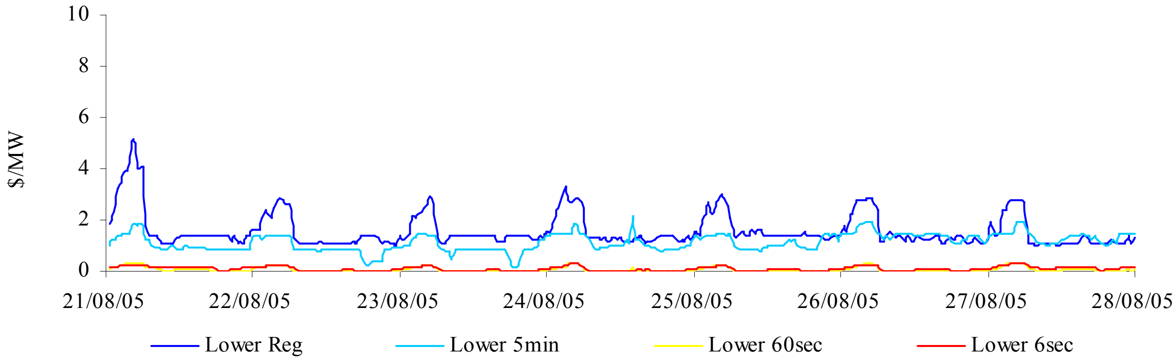
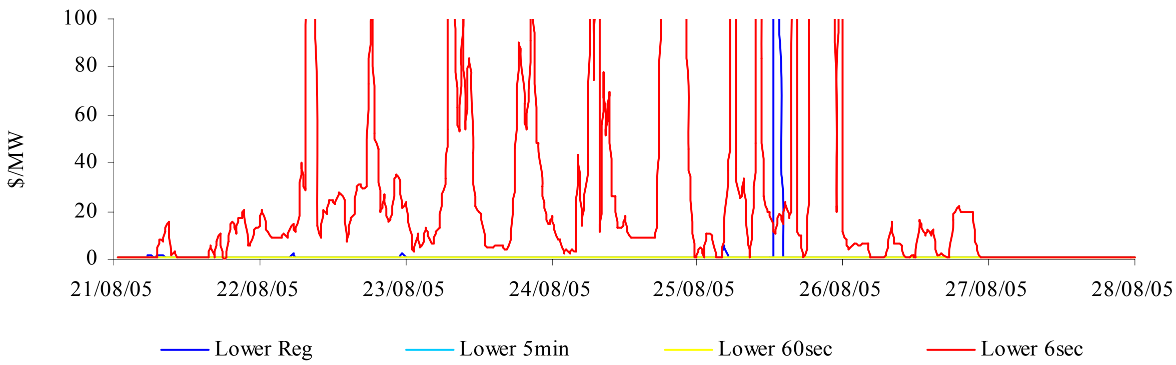


Figure 61A: prices for lower services - Tasmania



Figures 62 and 63 present for both raise and lower services the requirement for each service over the week.

Figure 62: raise requirements

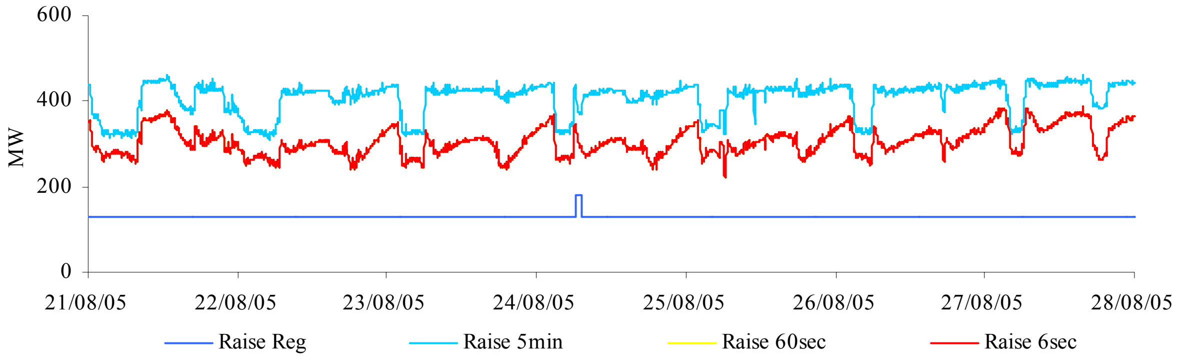


Figure 62A: raise requirements - Tasmania

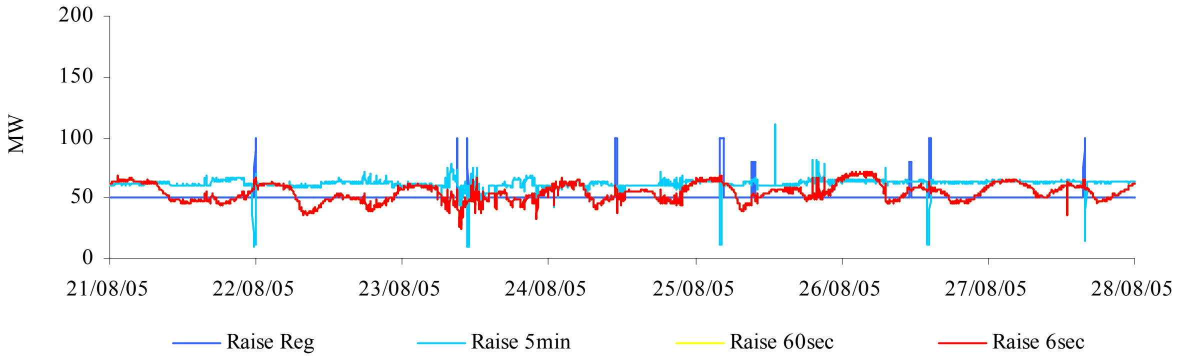


Figure 63: lower requirements

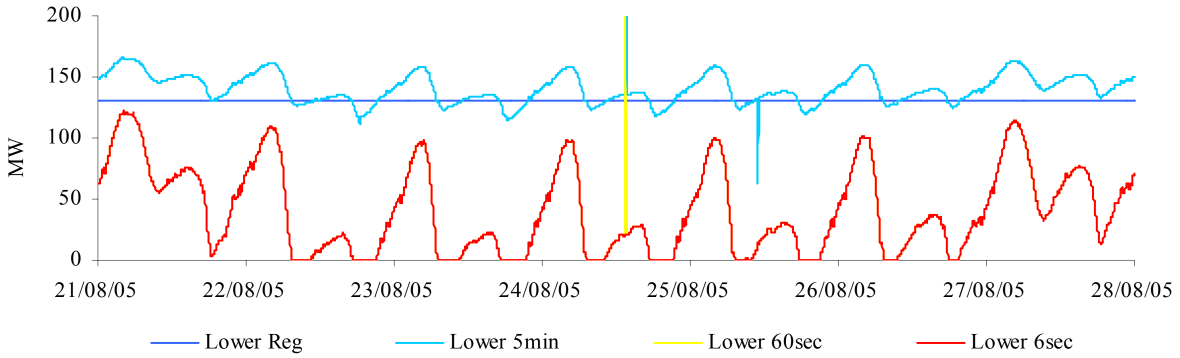
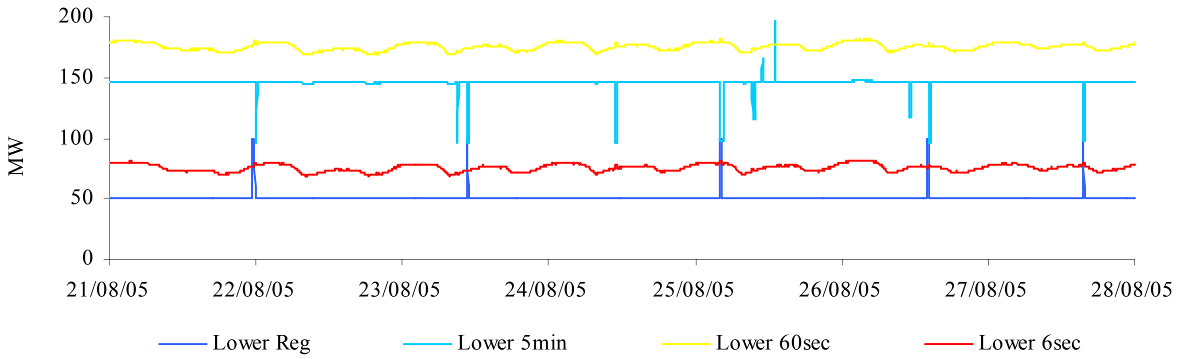


Figure 63A: lower requirements - Tasmania



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