Market analysis

AUSTRALIAN ENERGY REGULATOR

23 APRIL – 29 APRIL 2006

Spot prices were aligned across the mainland for around 90 per cent of the time for the second consecutive week, averaging between $20/MWh in Queensland and $26/MWh in South Australia. The average weekly price in Tasmania was $27/MWh.

Basslink was declared commercially available from midnight Friday 28 April, with a capability of 600 MW north and 480 MW south.

Turnover in the energy market was $82 million. The total cost of ancillary services for the week, including Tasmania, was around $410 000, or 0.5 per cent of energy market turnover.

Significant variations between actual prices and those forecast 4 and 12 hours ahead occurred in 25, or around 7 per cent of all trading intervals. Demand forecasts produced 4 and 12 hours ahead varied from actual by more than 5 per cent in a quarter of all trading intervals across the market. These variations were most frequent in South Australia and Tasmania occurring in 45 and 40 per cent of all trading intervals respectively. Conversely, in Queensland, demand forecast errors of more than 5 per cent occurred in less than 2 per cent 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

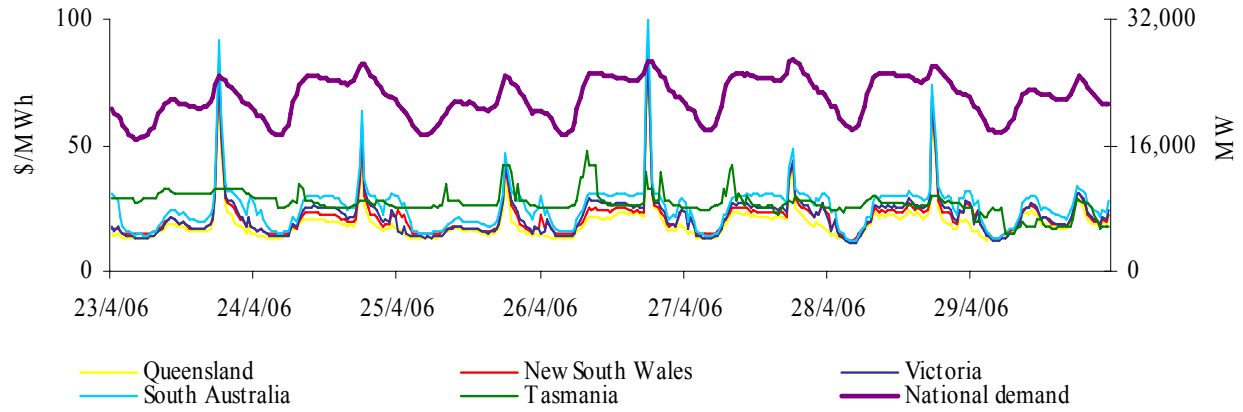


Figure 2: volume weighted average spot price for energy market ($/MWh)

	QLD	NSW	VIC	SA	TAS
Last week	20	22	23	26	27
Previous week	21	22	22	27	32
Same quarter last year	23	28	27	36	-
Financial year to date	33	46	37	44	64
% change from previous week*	▼6%	▲2%	▲2%	▼1%	▼16%
% change from same quarter last year**	▼15%	▼22%	▼16%	▼25%	-
% change from year to date***	▲1%	▼7%	▲24%	▲11%	-

*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	0.34	0.36	0.41	0.35	0.21
Previous week	0.55	0.46	0.50	0.37	0.12
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

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

Figure 4: Queensland

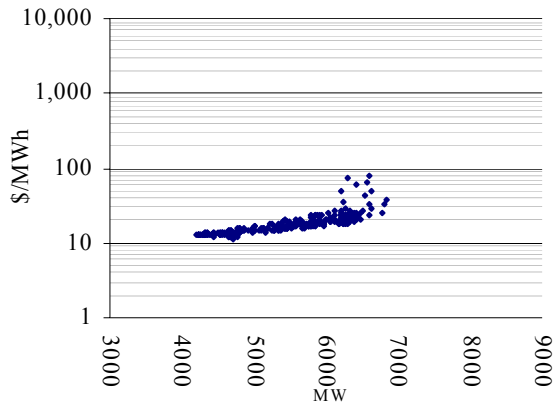


Figure 5: New South Wales

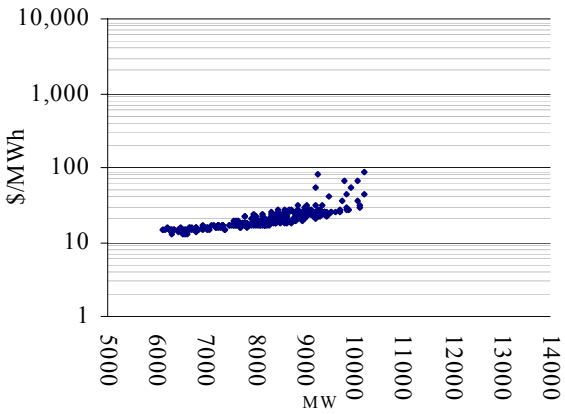


Figure 6: Victoria

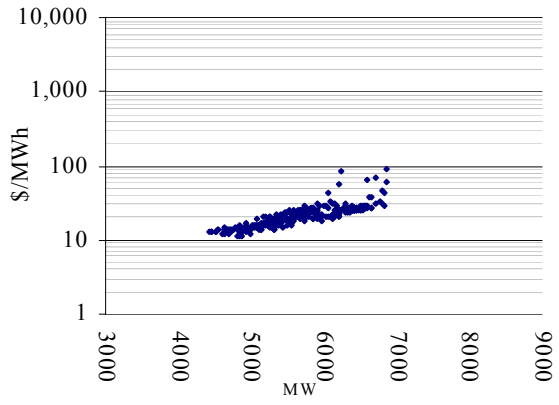


Figure 7: South Australia

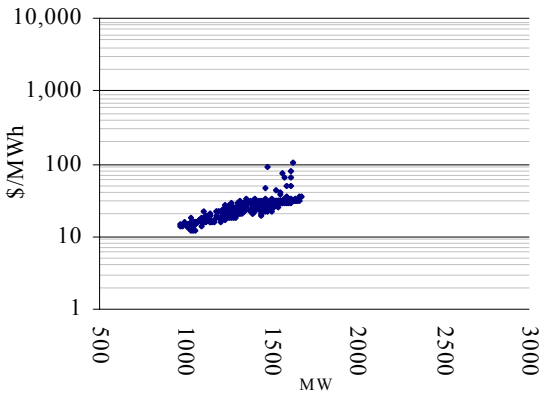
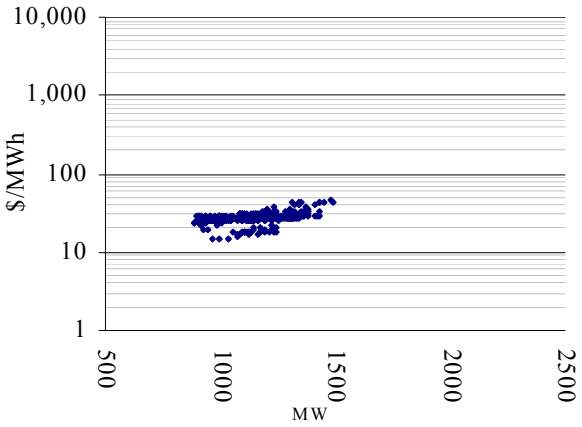


Figure 8: Tasmania



Maximum spot prices for the mainland ranged from $80/MWh in Queensland to $100/MWh in South Australia. These prices all occurred at 6.30pm on Wednesday. In Tasmania, the spot price reached a maximum of $47/MWh on Wednesday morning.

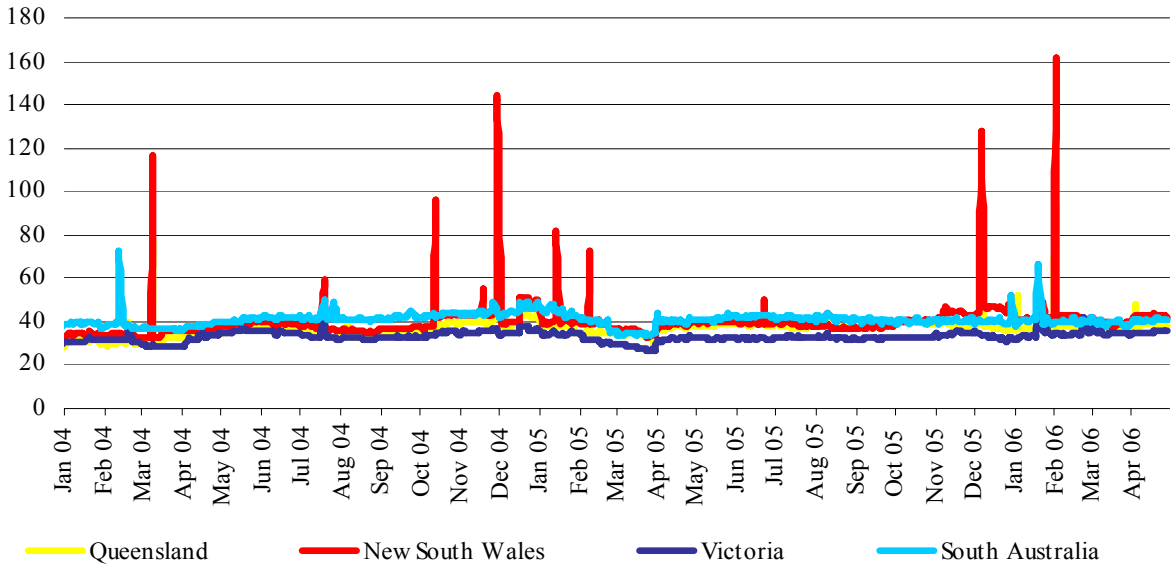
Figure 9 sets out the d-cyphaTrade wholesale electricity price index (WEPI)* for each region throughout the week excluding Tasmania. Figure 10 sets out the WEPI since 1 January 2004.

Figure 9: d-cyphaTrade WEPI for the week

	Monday	Tuesday	Wednesday	Thursday	Friday
Queensland	38.45	N/A	38.77	38.79	38.34
New South Wales	42.84	N/A	43.24	42.74	42.03
Victoria	35.45	N/A	35.67	35.52	35.44
South Australia	40.54	N/A	40.74	40.65	40.99

* 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

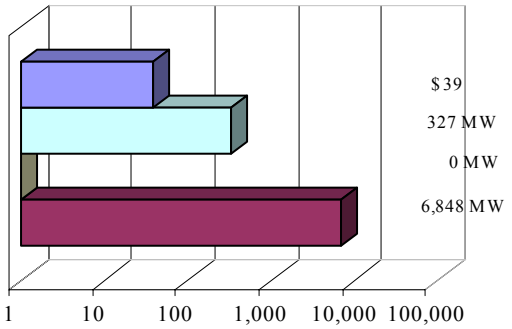


Figure 12: New South Wales

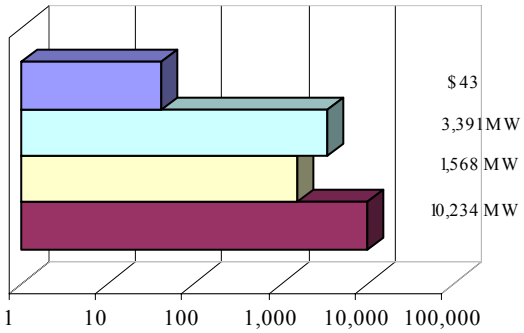


Figure 13: Victoria

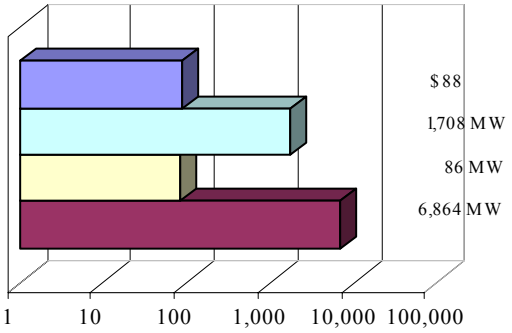


Figure 14: South Australia

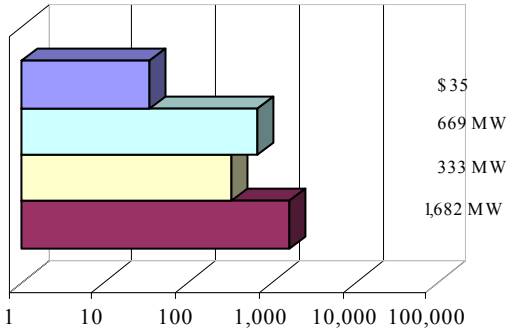
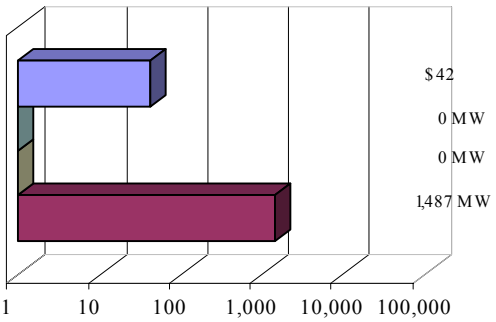


Figure 15: Tasmania



Price variations

There were 25 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

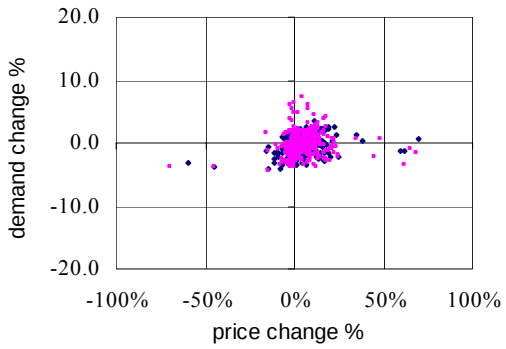


Figure 17: New South Wales

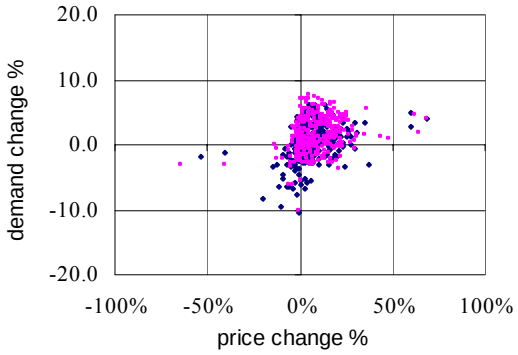


Figure 18: Victoria

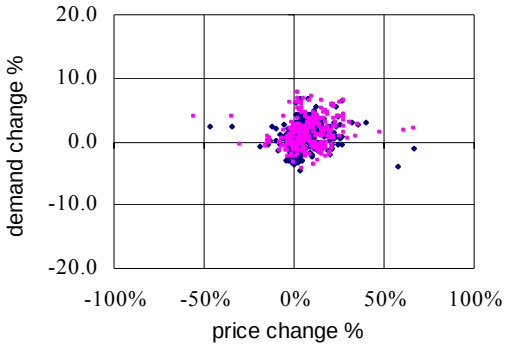


Figure 19: South Australia

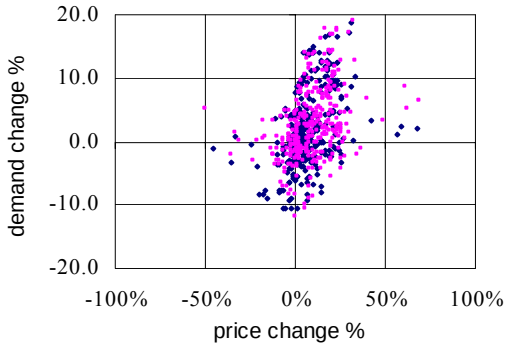
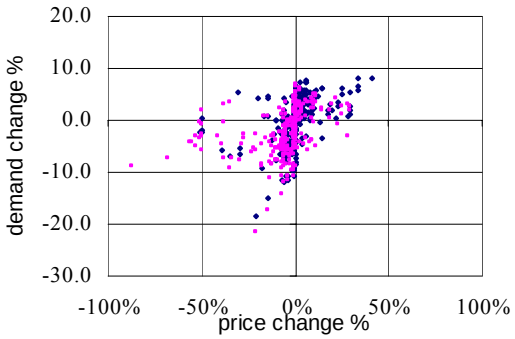


Figure 20: Tasmania



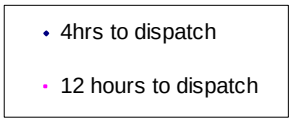


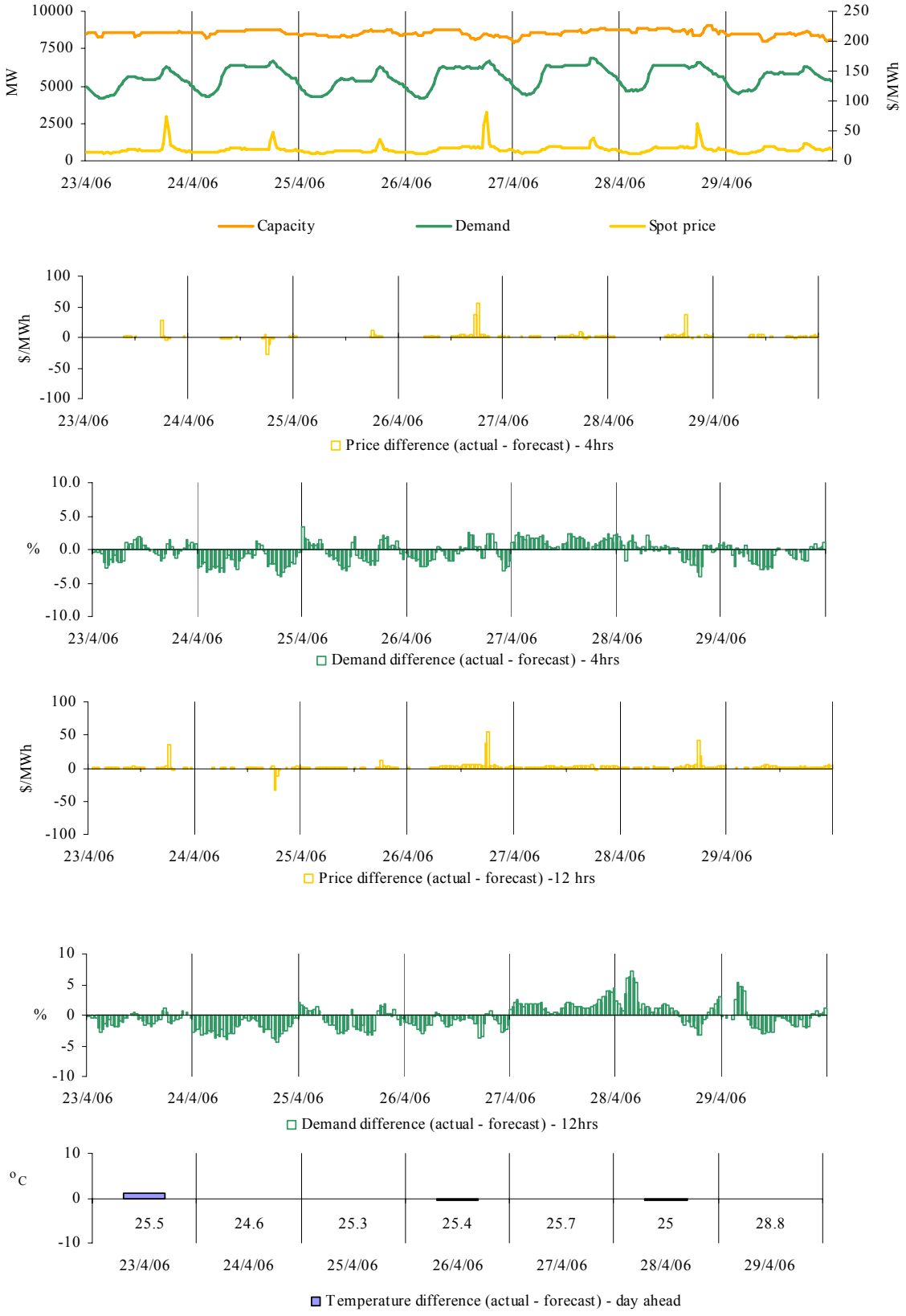
Figure 21 summarises the number and most probable reason for variations between forecast and actual prices.

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 four occasions in Queensland where the spot price was greater than three times the weekly average price of $20/MWh.

Sunday, 23 April

6:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	74.21	45.91	38.46
Demand (MW)	6301	6279	6269
Available capacity (MW)	8554	8534	8449

Conditions at the time saw demand and available capacity close to forecast, with prices aligned across the mainland.

There was no significant rebidding.

Wednesday, 26 April

6:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	60.26	23.16	22.85
Demand (MW)	6425	6502	6654
Available capacity (MW)	8444	8779	8759
6:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	80.12	24.43	25.62
Demand (MW)	6596	6551	6693
Available capacity (MW)	8508	8779	8759

Conditions at the time saw demand close to forecast, with available capacity around 300 MW lower than forecast four hours ahead. Prices were aligned across the mainland.

At 12.19 pm, Stanwell Corporation reduced the available capacity of Stanwell unit 2 by 360 MW to zero following the trip of the unit. All of this capacity was priced at less than $20/MWh. The unit was returned to full capability by 7 pm. The rebid reasons given included: “Unit trip”; “Unit RTS”; and “Changed RTS load”.

At 2.17 pm, Enertrade reduced the available capacity of Gladstone unit 5 by 280 MW to zero, following the trip of the unit. Most of this capacity was priced at less than $30/MWh. The rebid reason given was “Plant problems::Change availability”.

There was no other significant rebidding.

Friday, 28 April

6:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	62.90	25.21	21.95
Demand (MW)	6577	6653	6642
Available capacity (MW)	8377	8872	8922

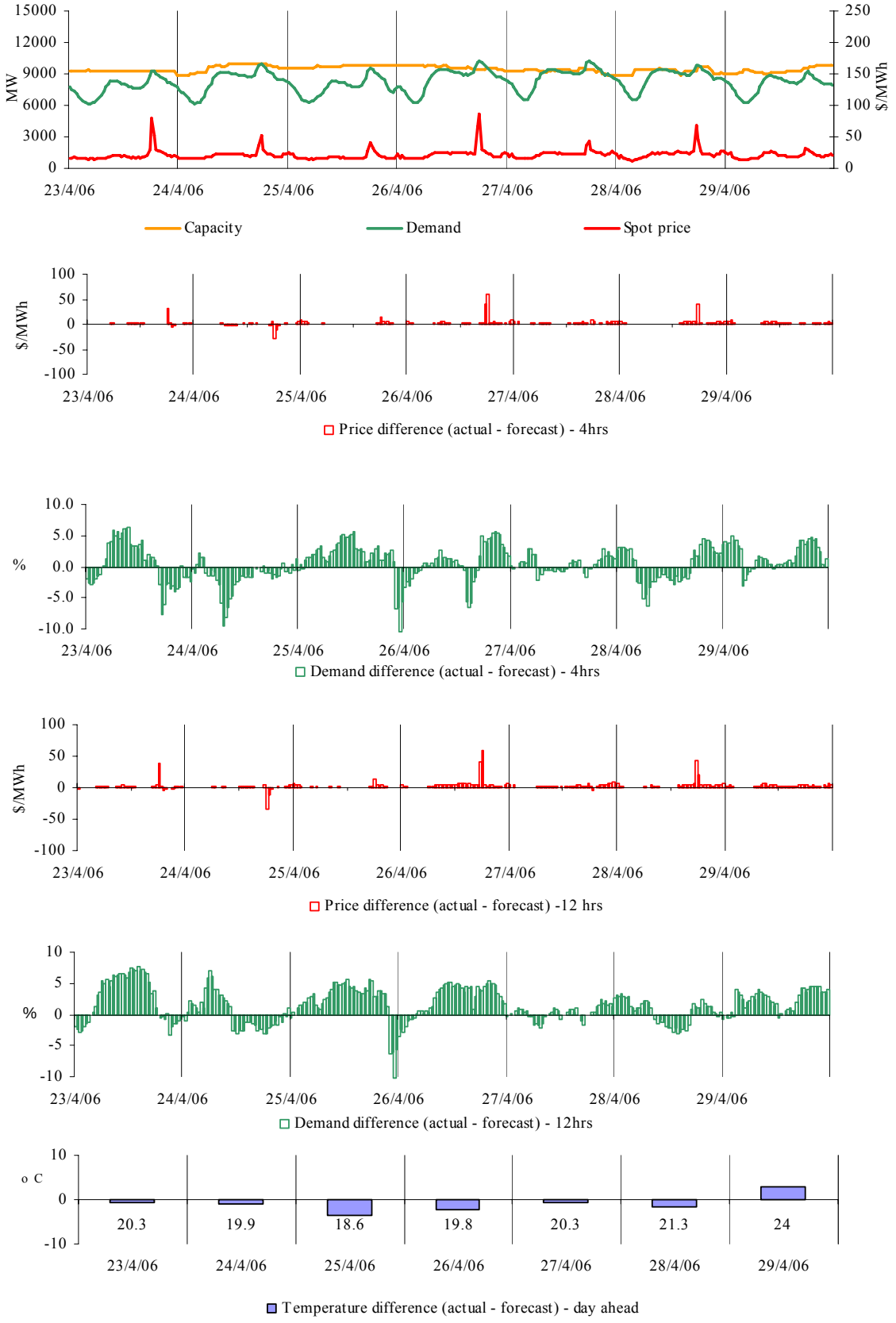
Conditions at the time saw demand close to forecast and available capacity around 500 MW lower than forecast four hours ahead. Prices were aligned across the mainland.

At 3.03 pm, Enertrade reduced the available capacity at Gladstone unit 1 by 140 MW to zero. All of this capacity was priced at less than $15/MWh. The rebid reason given was “Plant Problem::Change Availability”. The unit returned to service at 7 pm.

At 4.45 pm, CS Energy reduced the available capacity at Callide unit B1 to zero following the trip of the unit. The unit returned to service from 6.30 pm.

There was no other significant rebidding.

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



There were three occasions in New South Wales where the spot price was greater than three times the weekly average price of $22/MWh.

Sunday, 23 April

6:30 pm	Actual	4 hr forecast	12 hr forecast
Price ($/MWh)	80.21	50.00	41.50
Demand (MW)	9289	9564	9203
Available capacity (MW)	9205	9320	9325

Conditions at the time saw demand around 280 MW lower than forecast four hours ahead, with available capacity 115 MW lower than forecast on the same basis. Prices were aligned across the mainland.

At 3.42 pm, Macquarie Generation reduced the available capacity at Liddell unit 4 by 115 MW. Most of this capacity was priced below $20/MWh. The rebid reason given was "Mill Feeder Limit".

There was no other significant rebidding.

Wednesday, 26 April

6:30 pm	Actual	4 hr forecast	12 hr forecast
Price ($/MWh)	85.87	27.15	27.36
Demand (MW)	10214	9812	9808
Available capacity (MW)	9384	9722	9887

Conditions at the time saw demand 400 MW higher than forecast four hours ahead, with available capacity around 340 MW lower than forecast on the same basis. Prices were aligned across the mainland.

At 4.21 pm, Delta Electricity reduced the available capacity at Vales Point unit 6 by 230 MW. Most of this capacity was priced at less than $20/MWh. The rebid reason given was "Precip (or dust precipitator) performance::Capacity limit change".

There was no other significant rebidding.

Friday, 28 April

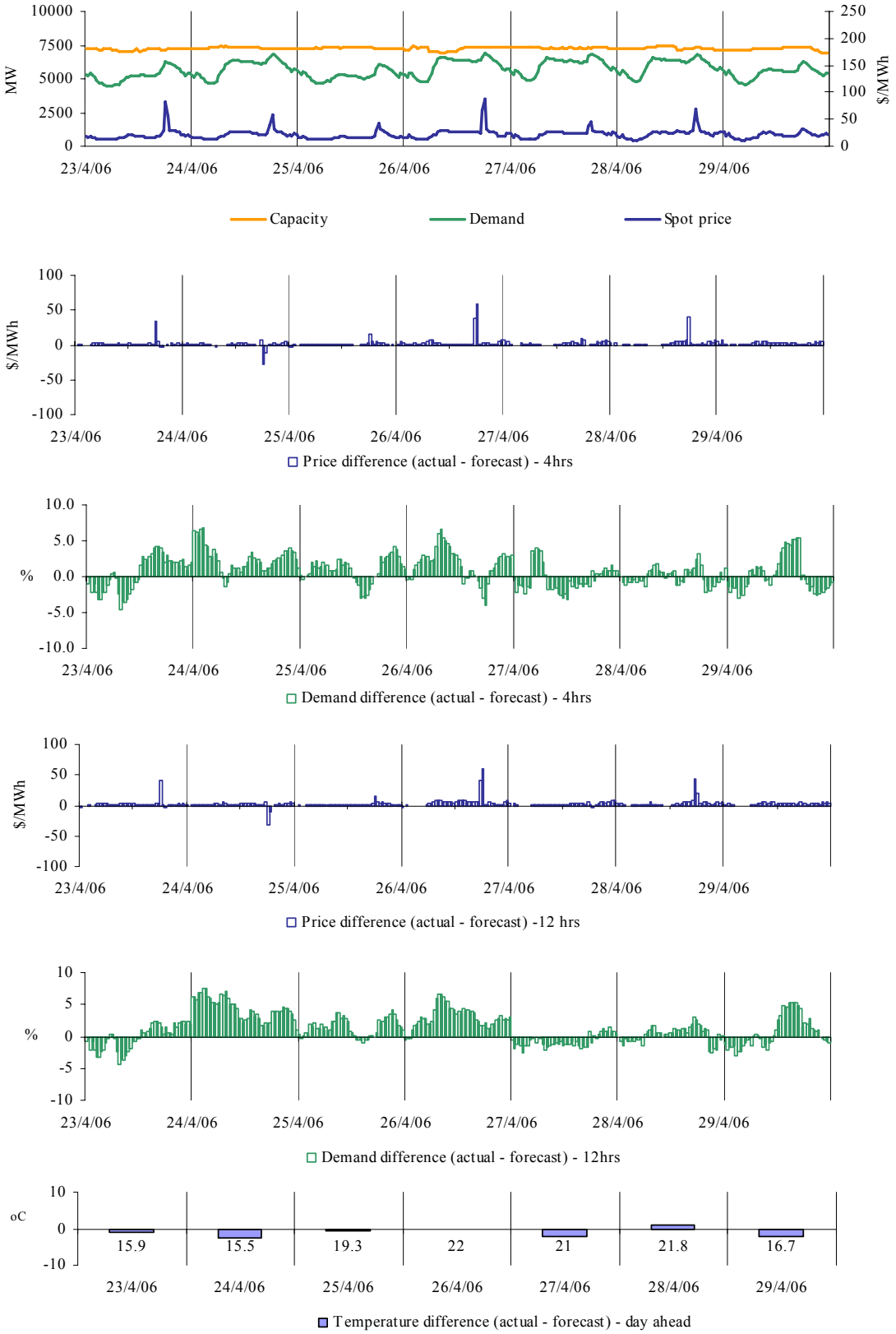
6:00 pm	Actual	4 hr forecast	12 hr forecast
Price ($/MWh)	67.64	27.11	23.79
Demand (MW)	9823	9564	9651
Available capacity (MW)	9317	9772	10045

Conditions at the time saw demand 240 MW higher than forecast. Available capacity was around 450 MW lower than forecast 4 hours ahead and around 700 MW lower than forecast 12 hours ahead. Prices were aligned across the mainland.

At around 1.30 pm, Macquarie Generation's Liddell 4 tripped reducing available capacity by 455 MW to zero. The rebid reason given was "Unit Trip-Drum Levels". The unit returned to service from 9.30 pm. Most of this capacity was replaced at Macquarie Generation's Bayswater plant.

There was no other significant rebidding.

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



There were three occasions in Victoria where the spot price was greater than three times the weekly average price of $23/MWh.

Sunday, 23 April

6:30 pm	Actual	4 hr forecast	12 hr forecast
Price ($/MWh)	83.76	50.20	43.71
Demand (MW)	6240	6049	6151
Available capacity (MW)	7156	7164	7206

Conditions at the time saw demand around 200 MW higher than forecast 4 hours ahead. Available capacity was close to forecast and prices were aligned across the mainland.

There was no significant rebidding.

Wednesday, 26 April

6:30 pm	Actual	4 hr forecast	12 hr forecast
Price ($/MWh)	87.66	29.46	28.83
Demand (MW)	6864	6938	6718
Available capacity (MW)	7301	7366	7371

Conditions at the time saw demand and available capacity close to forecast 4 hours ahead. Prices were aligned across the mainland.

At 2.51 pm, LYMMCO shifted 80 MW of capacity from prices of less than $20/MWh to around $90/MWh. The rebid reason given was "Expected demand tracking ahead at 2.50 pm".

At 2.52 pm, TRU Energy reduced the available capacity at Yallourn unit 4 by 50 MW. All of this capacity was priced at less than $10/MWh. The rebid reason given was "Unit capability as advised by OPS". This followed the earlier return to service of unit 3 at 11am.

There was no other significant rebidding.

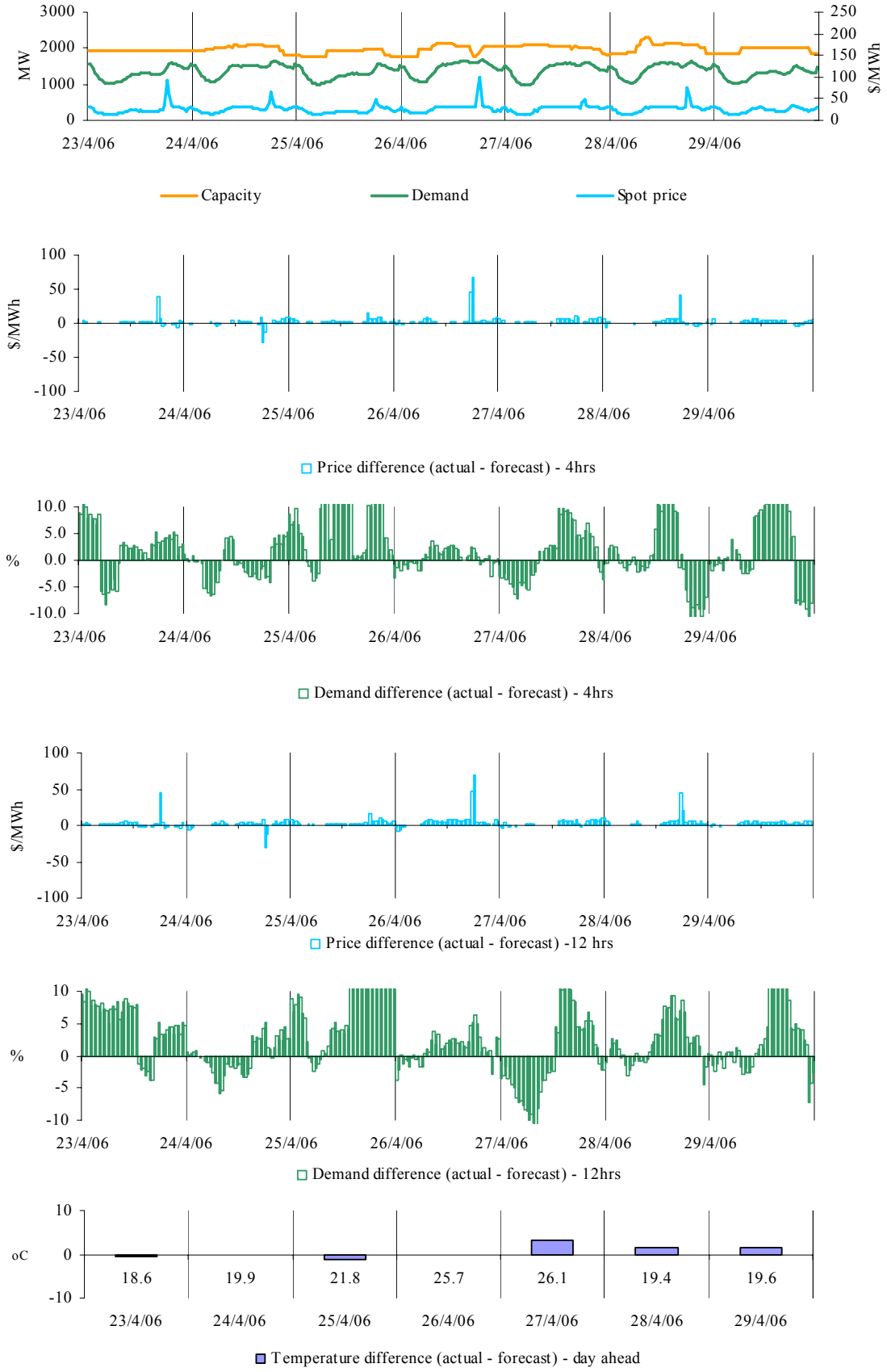
Friday, 28 April

6:00 pm	Actual	4 hr forecast	12 hr forecast
Price ($/MWh)	69.36	28.97	25.16
Demand (MW)	6718	6498	6542
Available capacity (MW)	7288	7184	7271

Conditions at the time saw demand around 200 MW higher than forecast four hours ahead. Available capacity was 100 MW higher than forecast on the same basis. Prices were 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 in South Australia where the spot price was greater than three times the weekly average price of $26/MWh.

Sunday, 23 April

6:30 pm	Actual	4 hr forecast	12 hr forecast
Price ($/MWh)	91.36	53.15	46.78
Demand (MW)	1475	1428	1425
Available capacity (MW)	1944	1944	1944

Conditions at the time saw demand 50 MW higher than forecast. Prices were aligned across the market.

At 2.24 pm, NRG Flinders shifted 30 MW of capacity at Osborne from prices around $50/MWh to $150/MWh. The rebid reason given was "Avoid uneconomical commitment of high cost capacity".

There was no significant rebidding.

Wednesday, 26 April

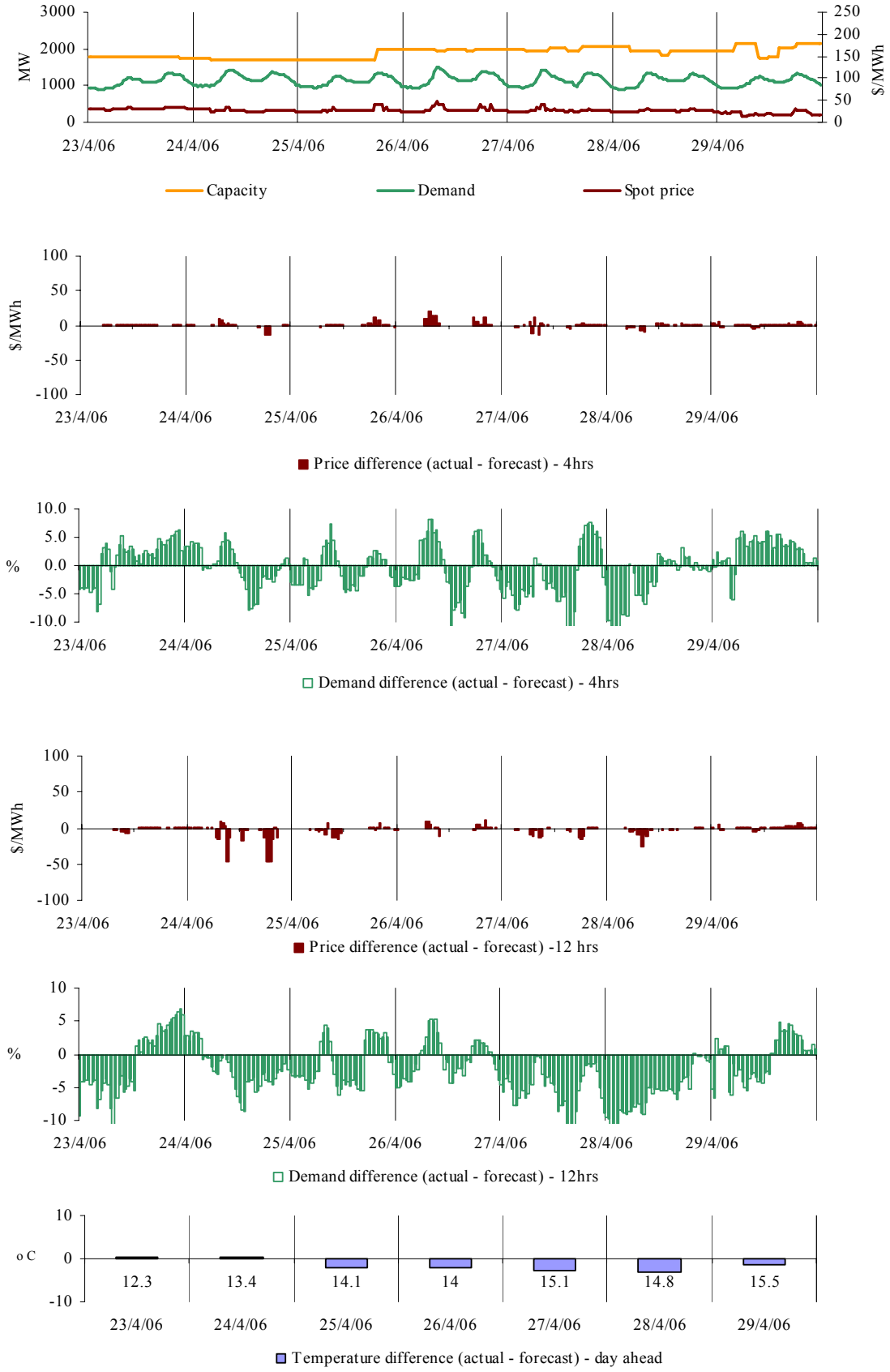
6:30 pm	Actual	4 hr forecast	12 hr forecast
Price ($/MWh)	100.33	32.00	31.17
Demand (MW)	1632	1597	1527
Available capacity (MW)	1891	2074	2148

Conditions at the time saw demand close to forecast. Available capacity was around 180 MW lower than forecast 4 hours ahead. Prices were aligned across the mainland.

At around 4 pm, International Power's Pelican Point tripped from around 230 MW. All of this capacity was priced below $30/MWh. The rebid reason given was "GT Trip". The unit returned to service during the 6.30pm trading interval.

There was no other significant rebidding.

Figures 46-51: 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 $27/MWh.

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

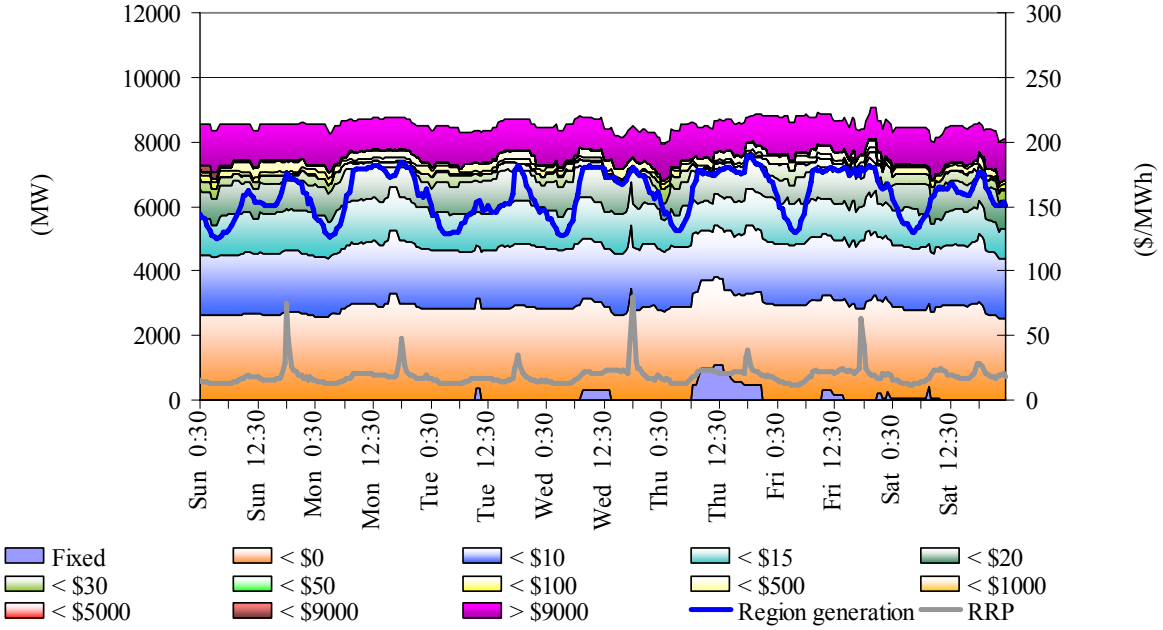


Figure 53: New South Wales closing bid prices, dispatched generation and spot price

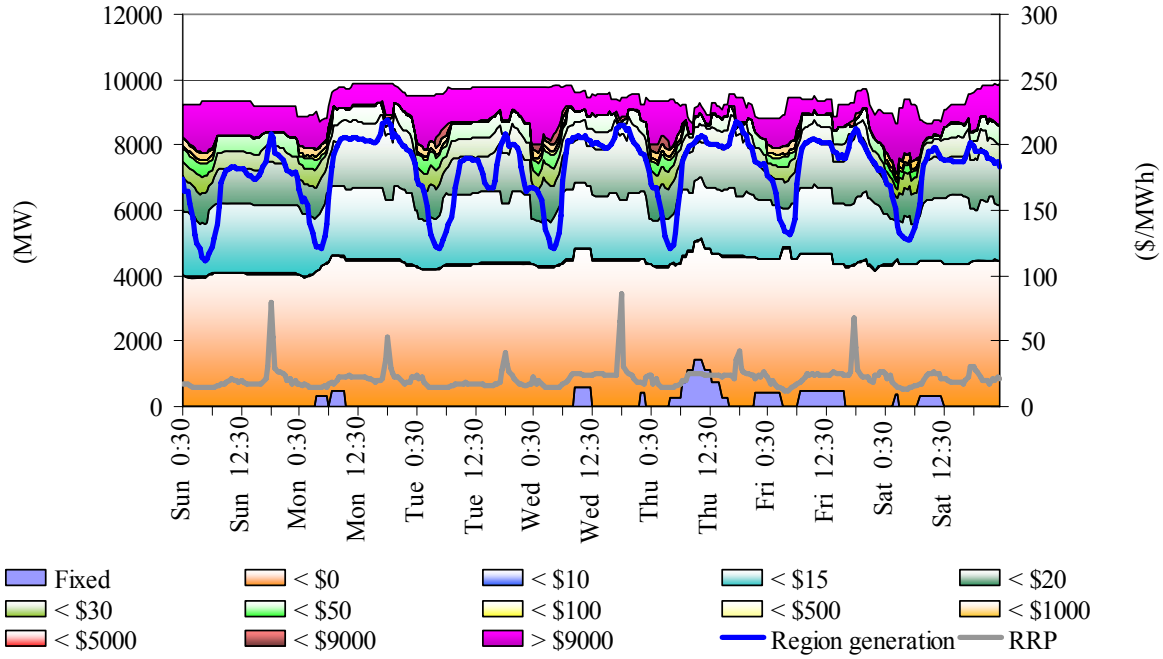


Figure 54: Victoria closing bid prices, dispatched generation and spot price

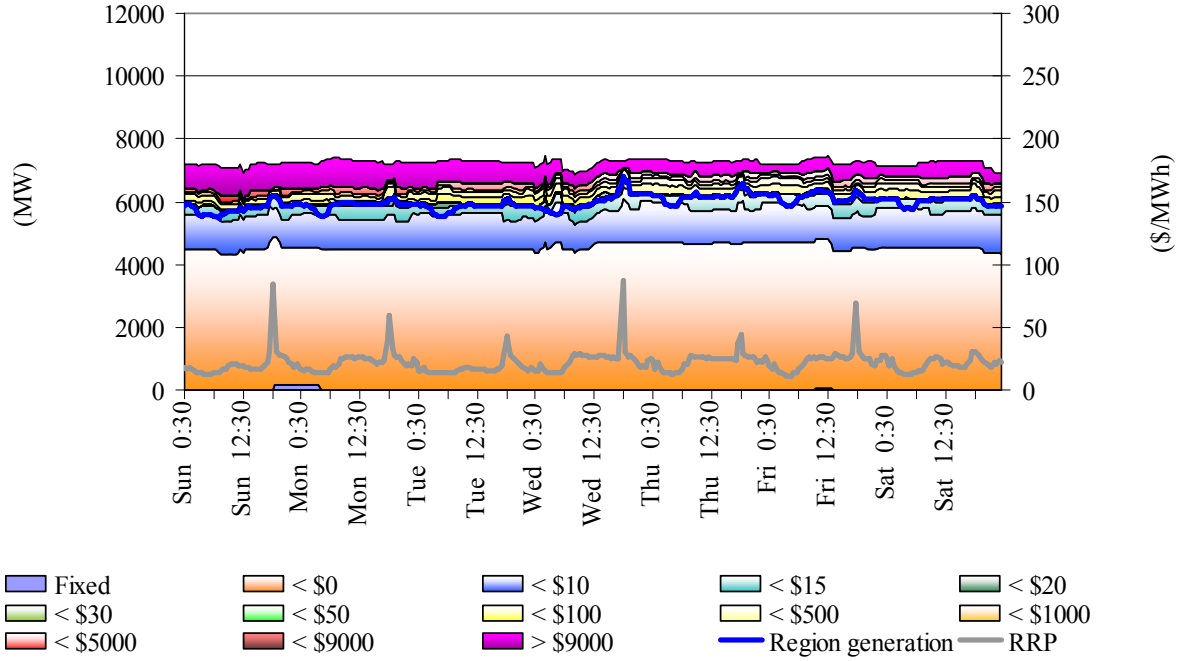


Figure 55: South Australia closing bid prices, dispatched generation and spot price

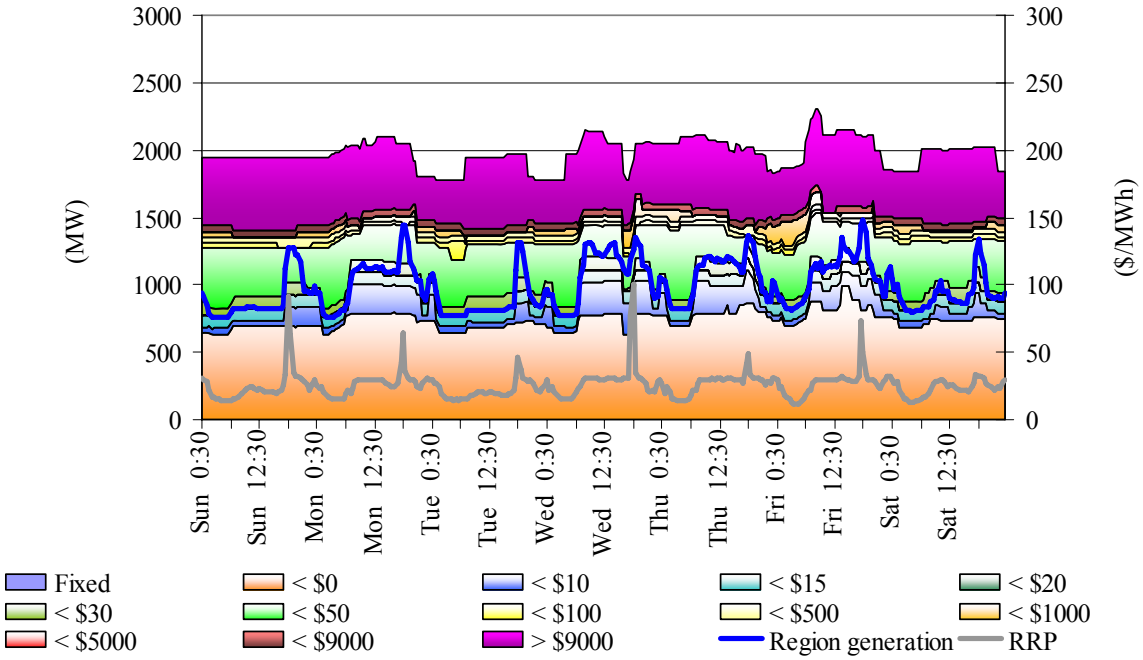
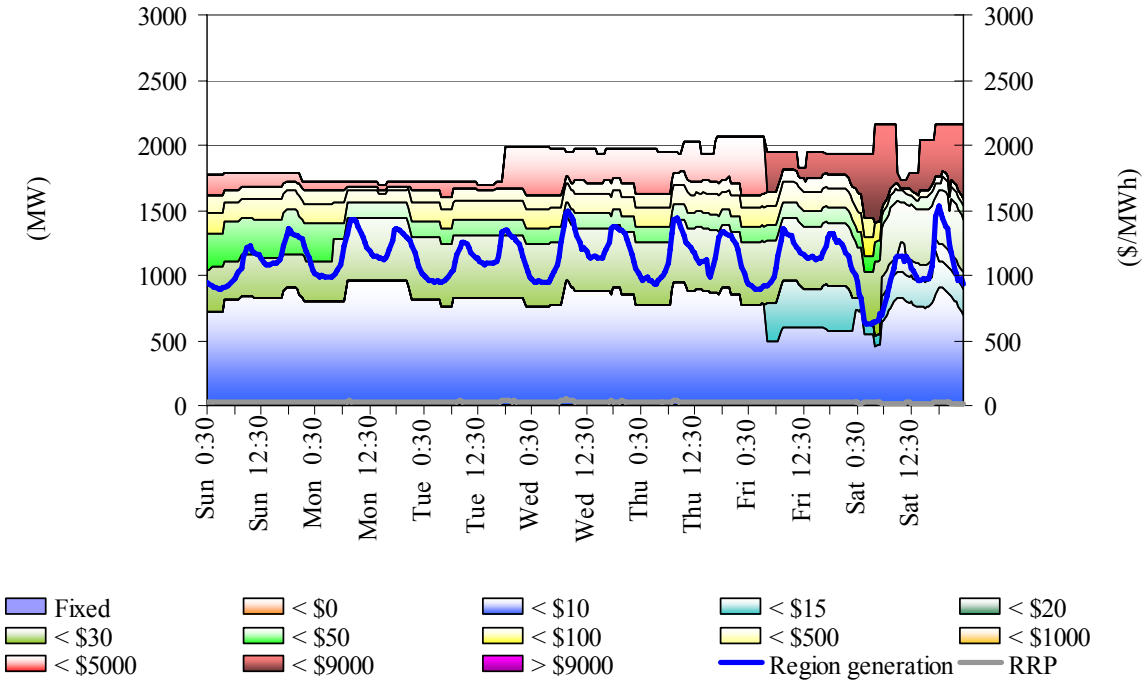


Figure 56: Tasmania closing bid prices, dispatched generation and spot price



Ancillary service market

The total cost of ancillary services on the mainland for the week was around $380 000 or 0.5 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 interconnected regions. The commercialisation of Basslink from Saturday, saw changes to the price of and requirements for frequency control ancillary services, particularly in Tasmania.

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	2.47	1.02	1.26	1.96	0.24	0.36	1.24	2.04
Previous week	2.78	1.00	1.95	1.28	0.29	0.32	1.54	1.89
Last quarter	1.76	0.73	1.15	1.54	0.39	2.28	5.00	1.93
Market Cost ($1000s)	128	53	84	43	2	3	29	42
% of energy market	0.17%	0.07%	0.11%	0.06%	0.00%	0.00%	0.04%	0.05%

The total cost of ancillary services in Tasmania for the week was $30 000 or 0.6 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	0.29	0.27	0.78	0.15	0.62	0.10	0.09	0.27
Previous week	0.15	0.10	0.10	0.12	1.69	0.11	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)	2	3	8	1	8	3	2	2
% of energy market	0.04%	0.05%	0.16%	0.02%	0.15%	0.06%	0.04%	0.05%

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

Figure 59: daily frequency control ancillary service costs

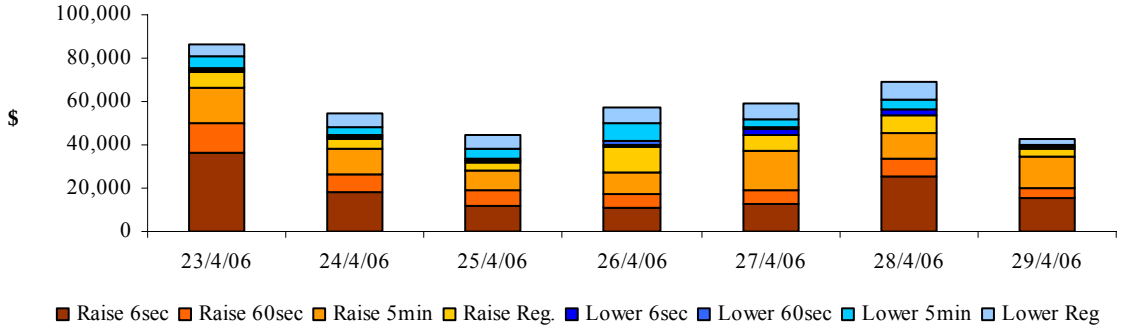
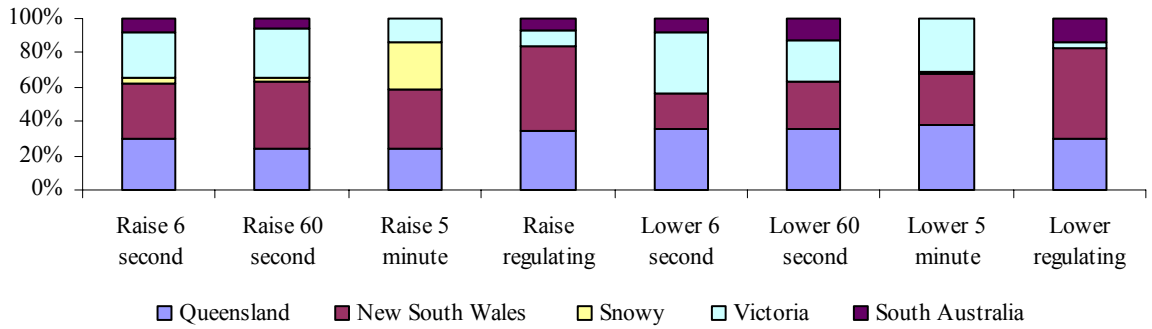


Figure 60 shows the contribution, on a percentage basis, that frequency control ancillary service providers are utilised (in each mainland region) to satisfy the total requirement for each service.

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

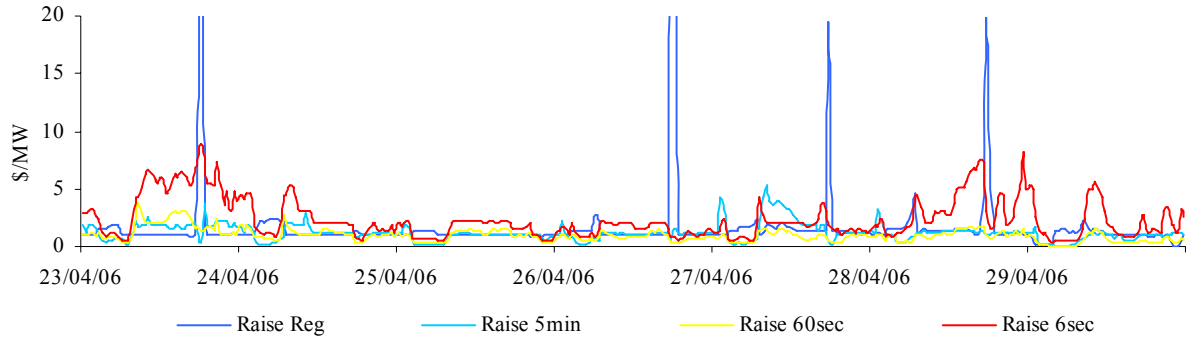


Figure 61A: prices for raise services - Tasmania

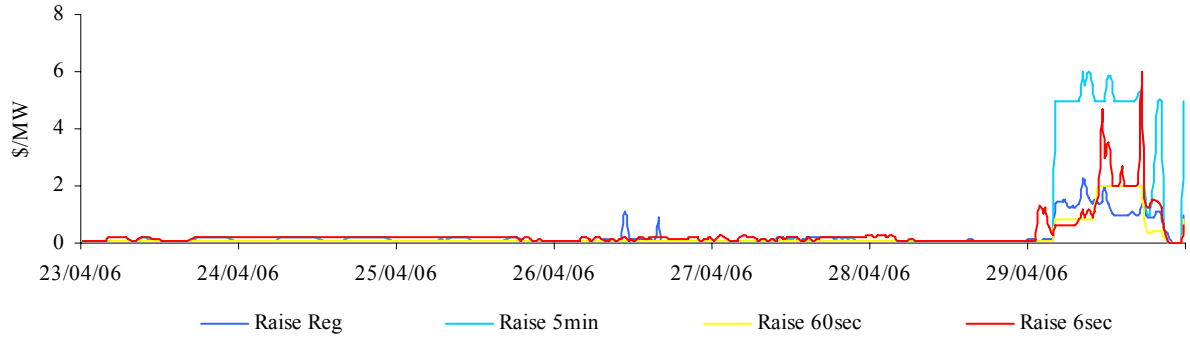


Figure 62: prices for lower services

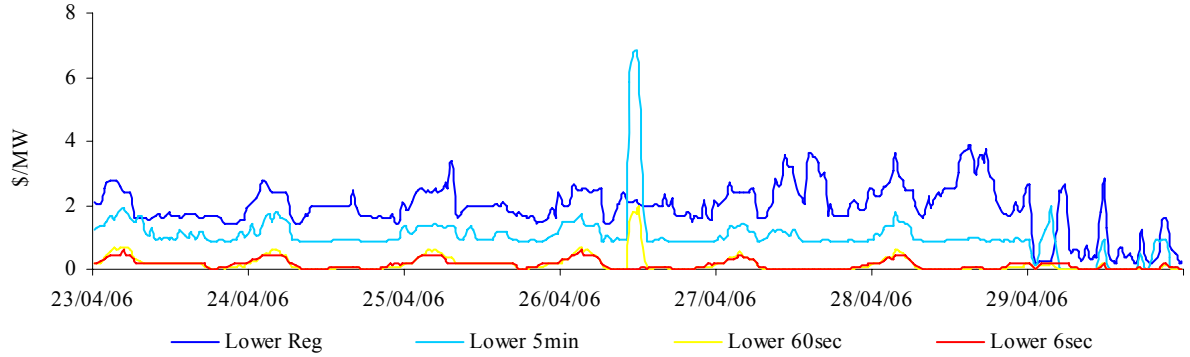
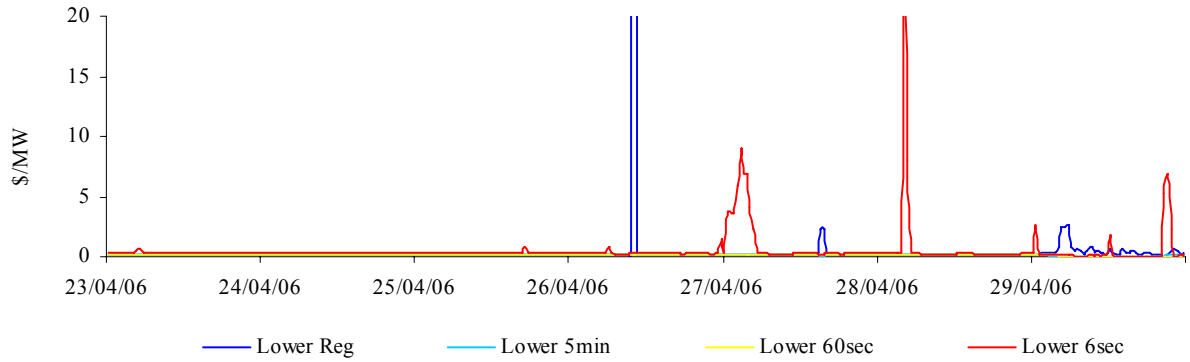


Figure 62A: prices for lower services - Tasmania



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

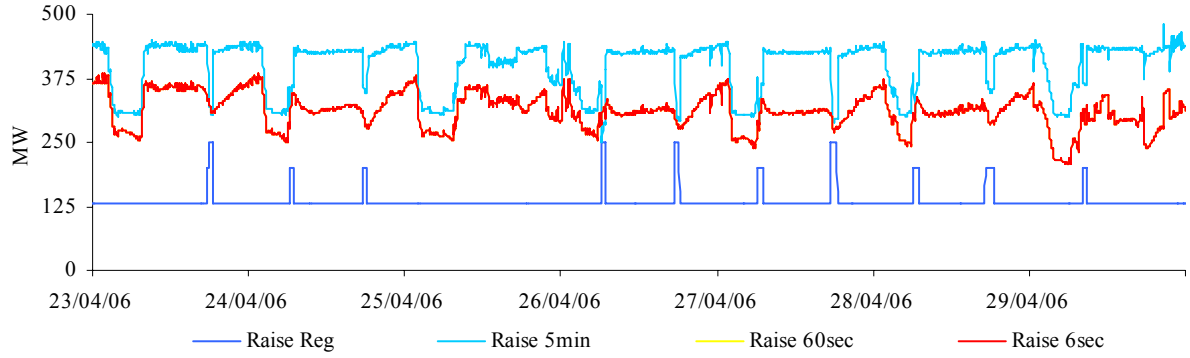


Figure 63A: raise requirements - Tasmania

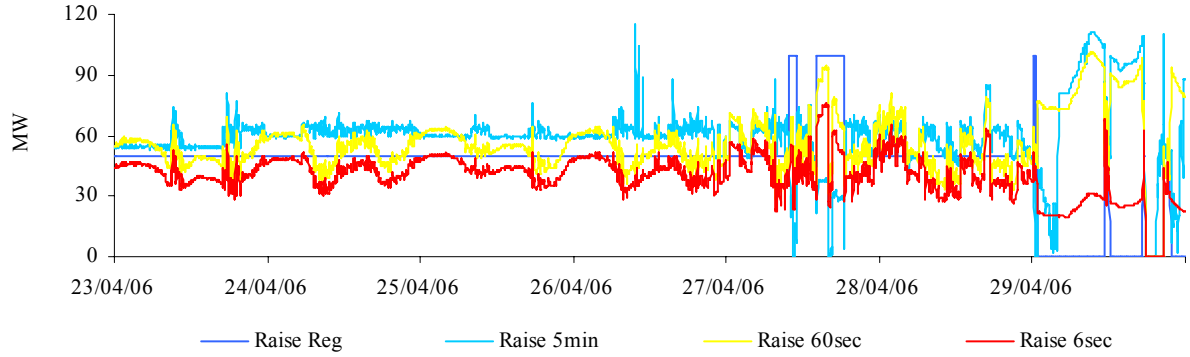


Figure 64: lower requirements

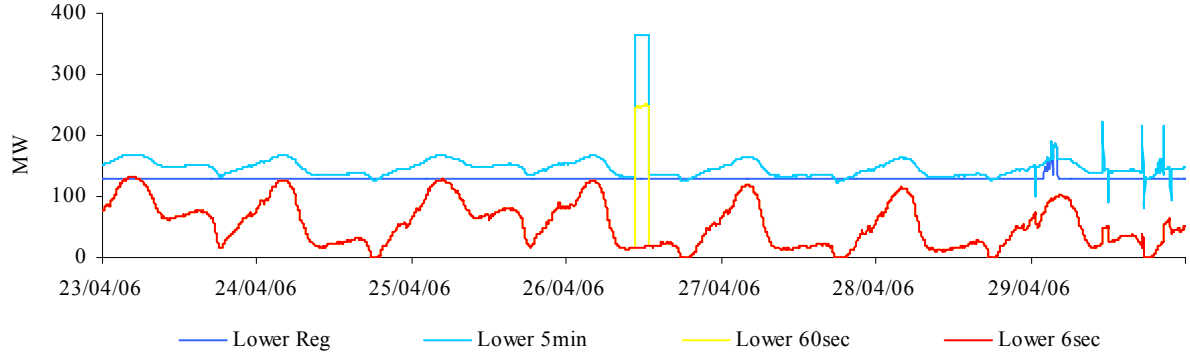
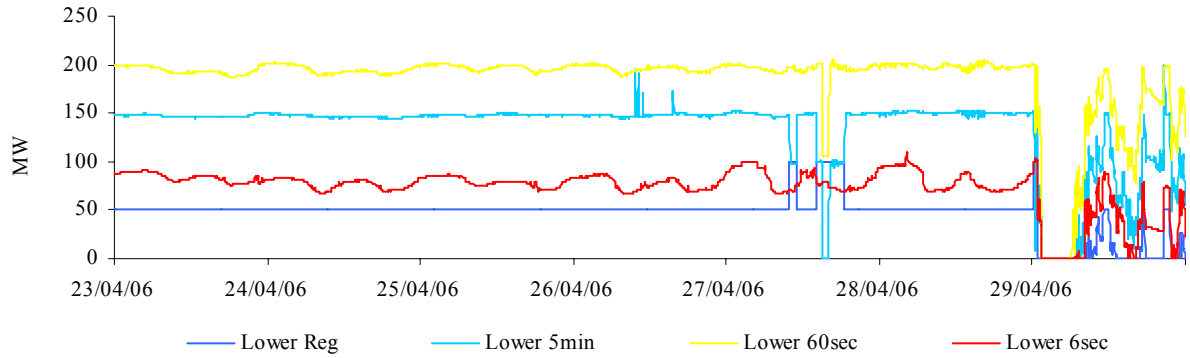


Figure 64A: lower requirements - Tasmania



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