

A 30 day trial of the Basslink interconnector commenced on Thursday. Transfer capability into Victoria is initially limited to 280 MW, which is around half of the expected capability, to manage voltage control issues near Georgetown in Tasmania. Average spot prices ranged from a low of \$21/MWh in Queensland to \$31/MWh in South Australia and Tasmania, with prices generally aligned across all regions from Thursday onwards.

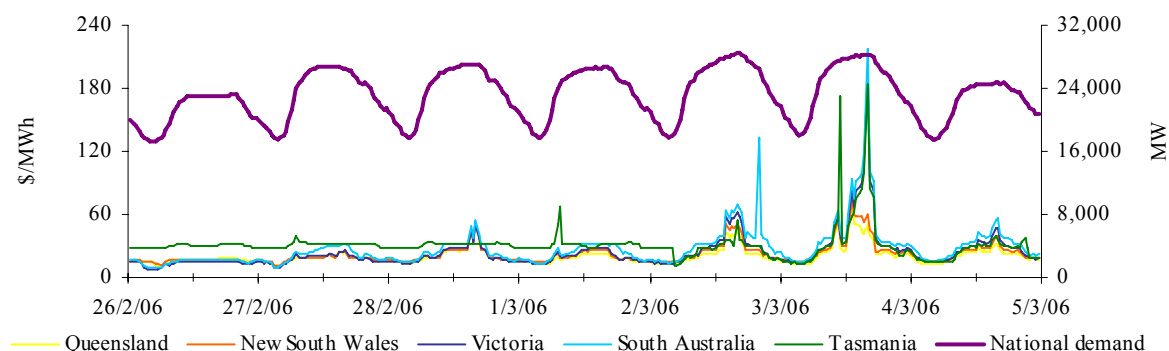
Turnover in the energy market totaled \$93 million. The cost of ancillary services for the mainland for the week was around \$160 000, or approximately 0.2 per cent of the energy market. In Tasmania the cost of ancillary services totaled \$50 000 or 0.9 per cent of turnover.

Significant variations between actual prices and those forecast 4 and 12 hours ahead occurred in 33, or ten 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 a quarter of all trading intervals across the market. These variations were most frequent in South Australia occurring in more than two thirds 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	21	23	26	31	31
Previous week	31	25	200	59	32
Same quarter last year	25	35	22	31	-
Financial year to date	35	51	40	48	71
% change from previous week*	▼33%	▼7%	▼87%	▼48%	▼3%
% change from same quarter last year**	▼17%	▼36%	▲16%	▼1%	-
% change from year to date***	0%	▼7%	▲30%	▲15%	-

\*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.

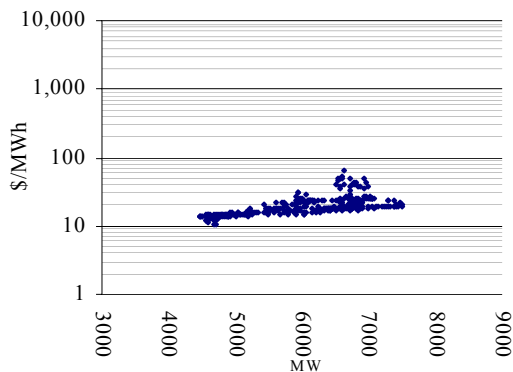
\*\*\*The percentage change between the average spot price for the current financial year to date and the average spot price over the similar period for the previous financial year.

**Figure 3: volatility index during peak periods**

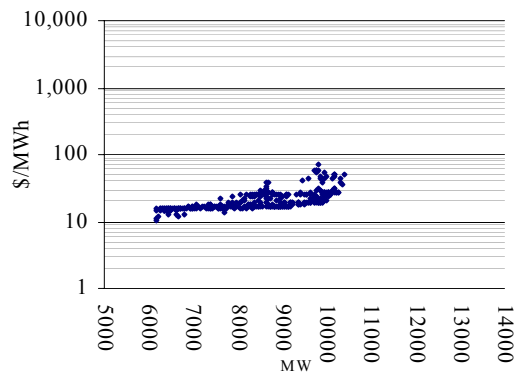
	QLD	NSW	VIC	SA	TAS
Last week	0.90	0.92	1.00	0.94	0.23
Previous week	1.56	1.61	2.87	1.64	0.08
Same quarter last year	0.73	0.74	0.78	0.70	-

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

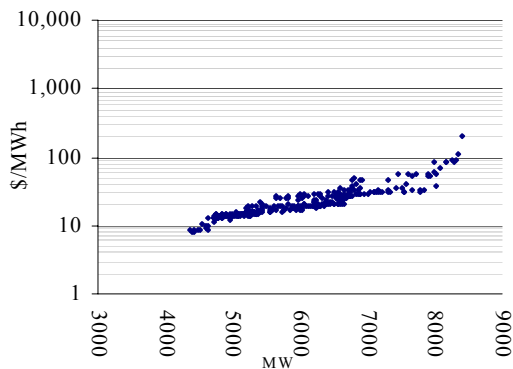
**Figure 4: Queensland**



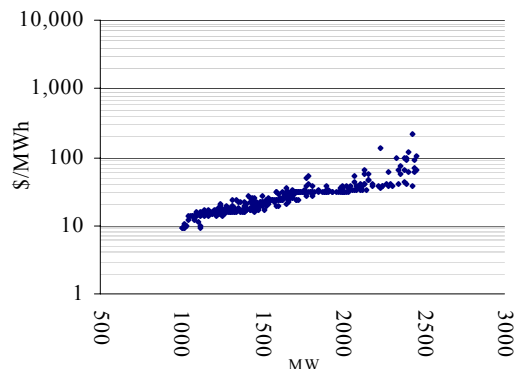
**Figure 5: New South Wales**



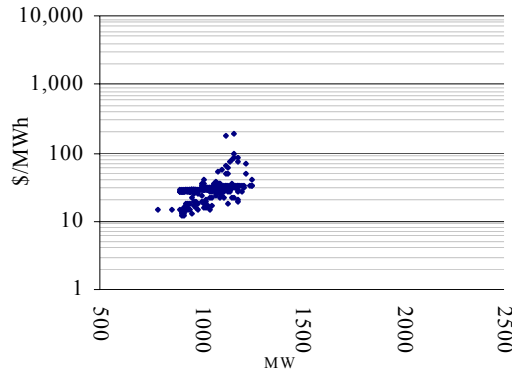
**Figure 6: Victoria**



**Figure 7: South Australia**



**Figure 8: Tasmania**



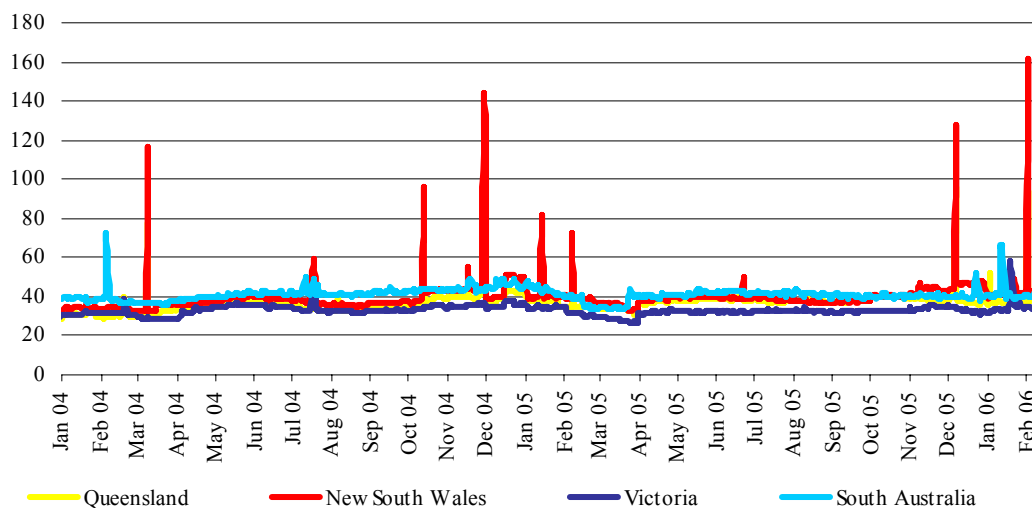
Maximum spot prices for the week reached \$73/MWh in New South Wales and \$63/MWh in Queensland at 1pm on Friday afternoon. Spot prices reached \$199/MWh in Victoria, \$218/MWh in South Australia and \$184/MWh in Tasmania all at 4.00pm on Friday.

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	37.35	37.30	37.14	37.32	37.00
New South Wales	41.38	42.23	41.96	42.21	41.75
Victoria	34.48	35.10	34.92	35.56	36.37
South Australia	39.54	39.94	40.60	41.56	41.46

**Figure 10: d-cyphaTrade WEPI**



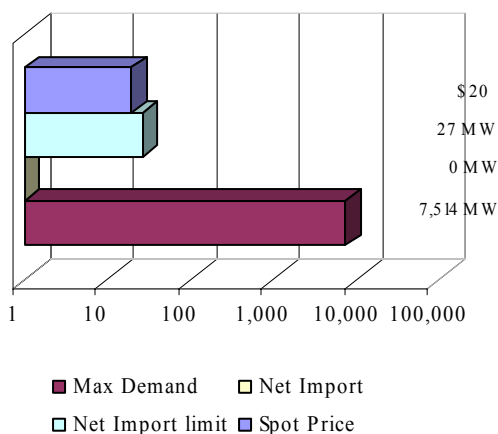
**Reserve**

There were no Low Reserve Conditions forecast throughout the week.

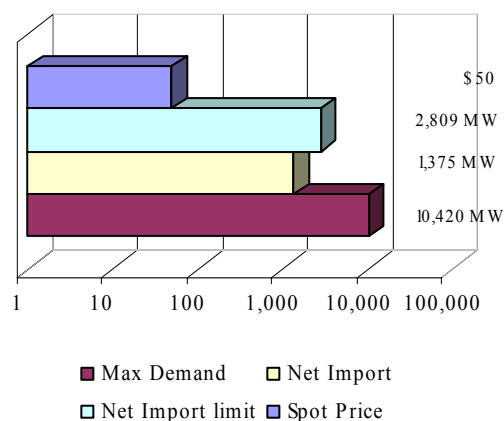
Figures 11 to 14 show spot price, net imports and limits at the time of weekly maximum demand.

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

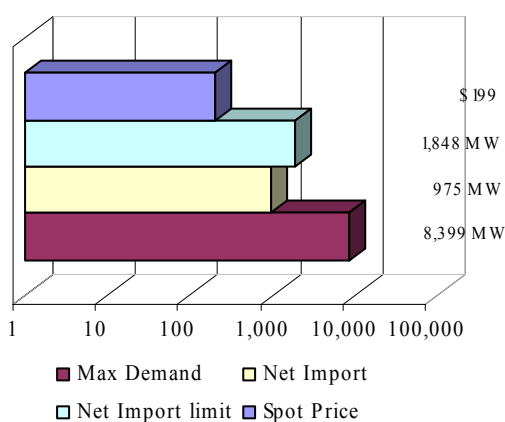
**Figure 11: Queensland**



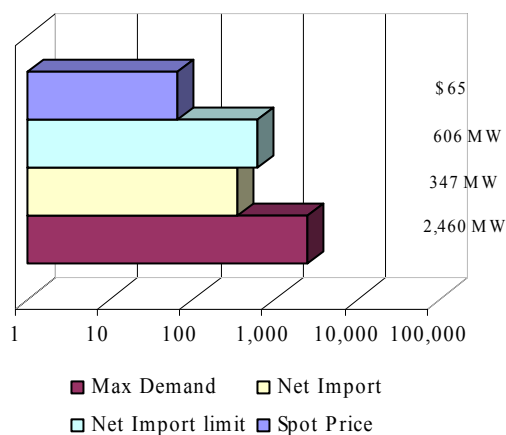
**Figure 12: New South Wales**



**Figure 13: Victoria**



**Figure 14: South Australia**

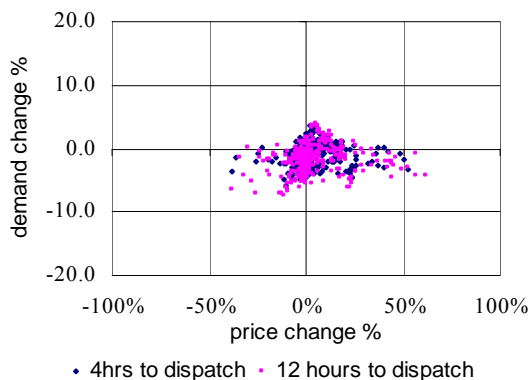


In Tasmania, demand reached a maximum of 1256 MW around 7.30am on Monday morning. The spot price at this time reached \$40/MWh.

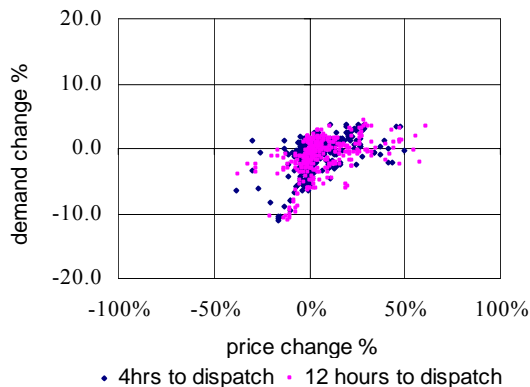
**Price variations**

There were 33 trading intervals where actual prices significantly varied from forecasts made 4 and 12 hours ahead of dispatch. Figures 15 to 19 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.

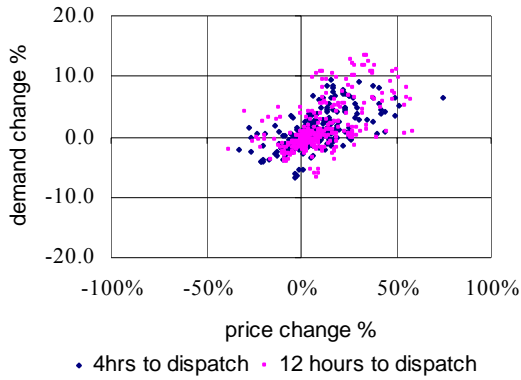
**Figure 15: Queensland**



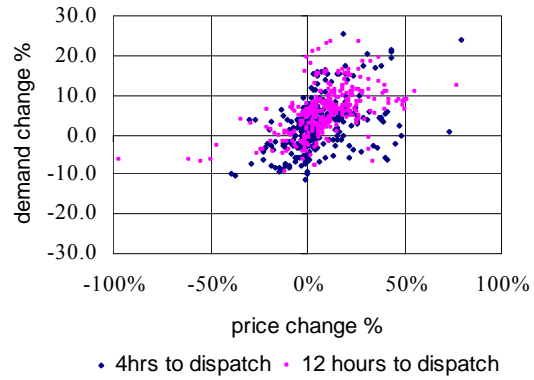
**Figure 16: New South Wales**



**Figure 17: Victoria**



**Figure 18: South Australia**



**Figure 19: Tasmania**

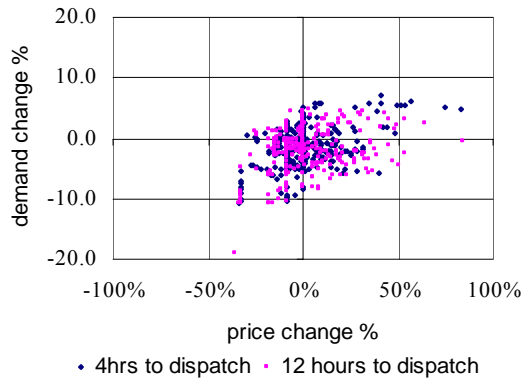
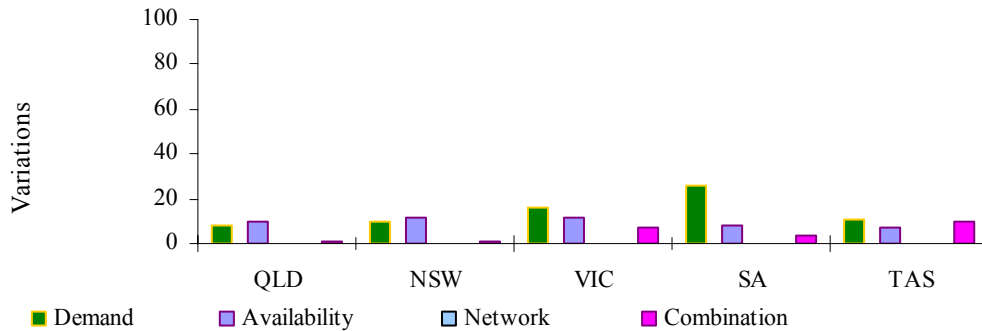


Figure 20 summarises the number and most probable reason for variations between forecast and actual prices.

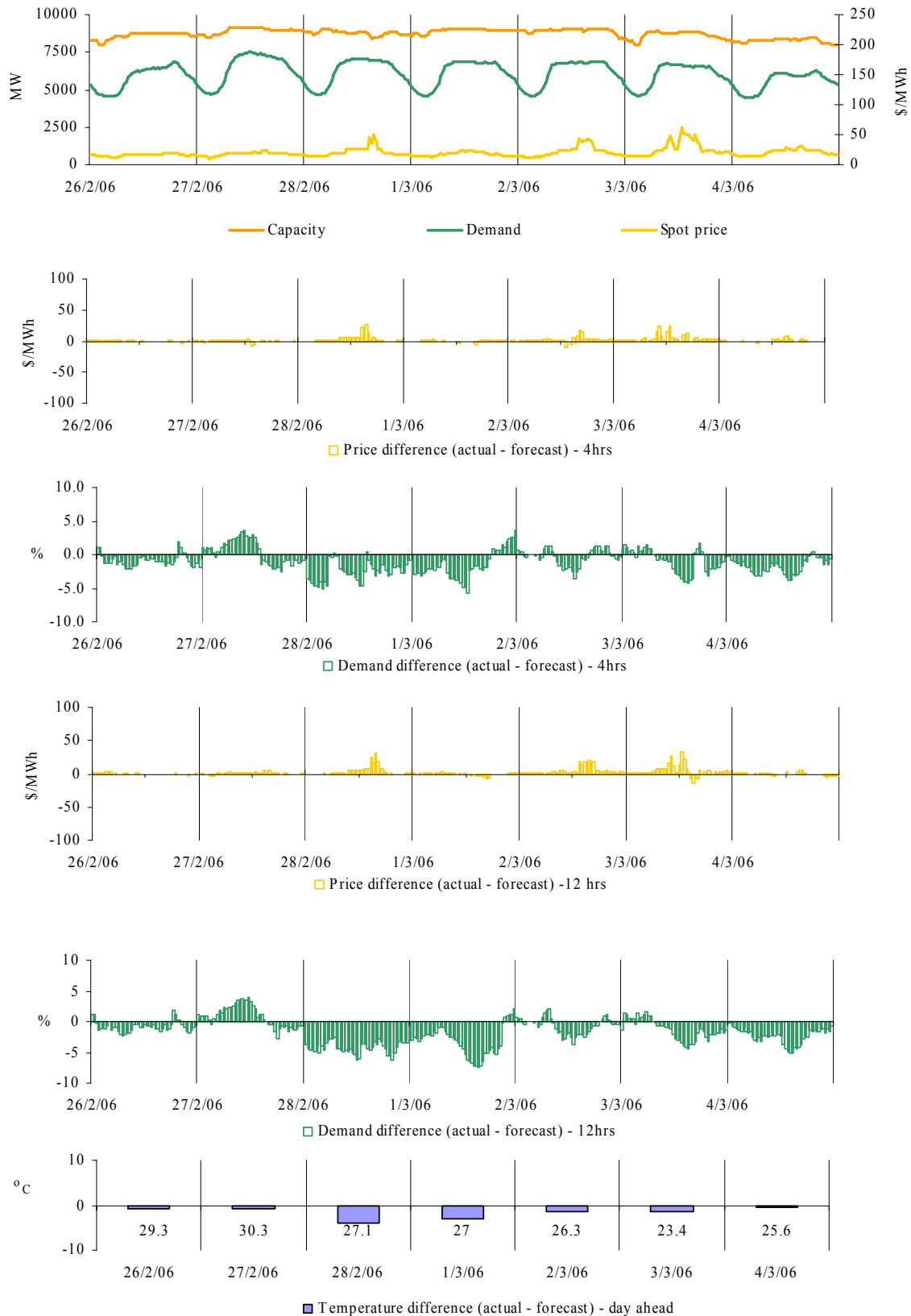
**Figure 20: reasons for variations between forecast and actual prices**



**Price and demand**

Figures 21 - 50 set out details of spot prices and demand on a regional basis. They include the actual spot price, 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 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 dispatched in a region are overlaid.

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



There was 1 occasion in Queensland where the spot price was greater than three times the weekly average price of \$21/MWh. This occurred on Friday afternoon.

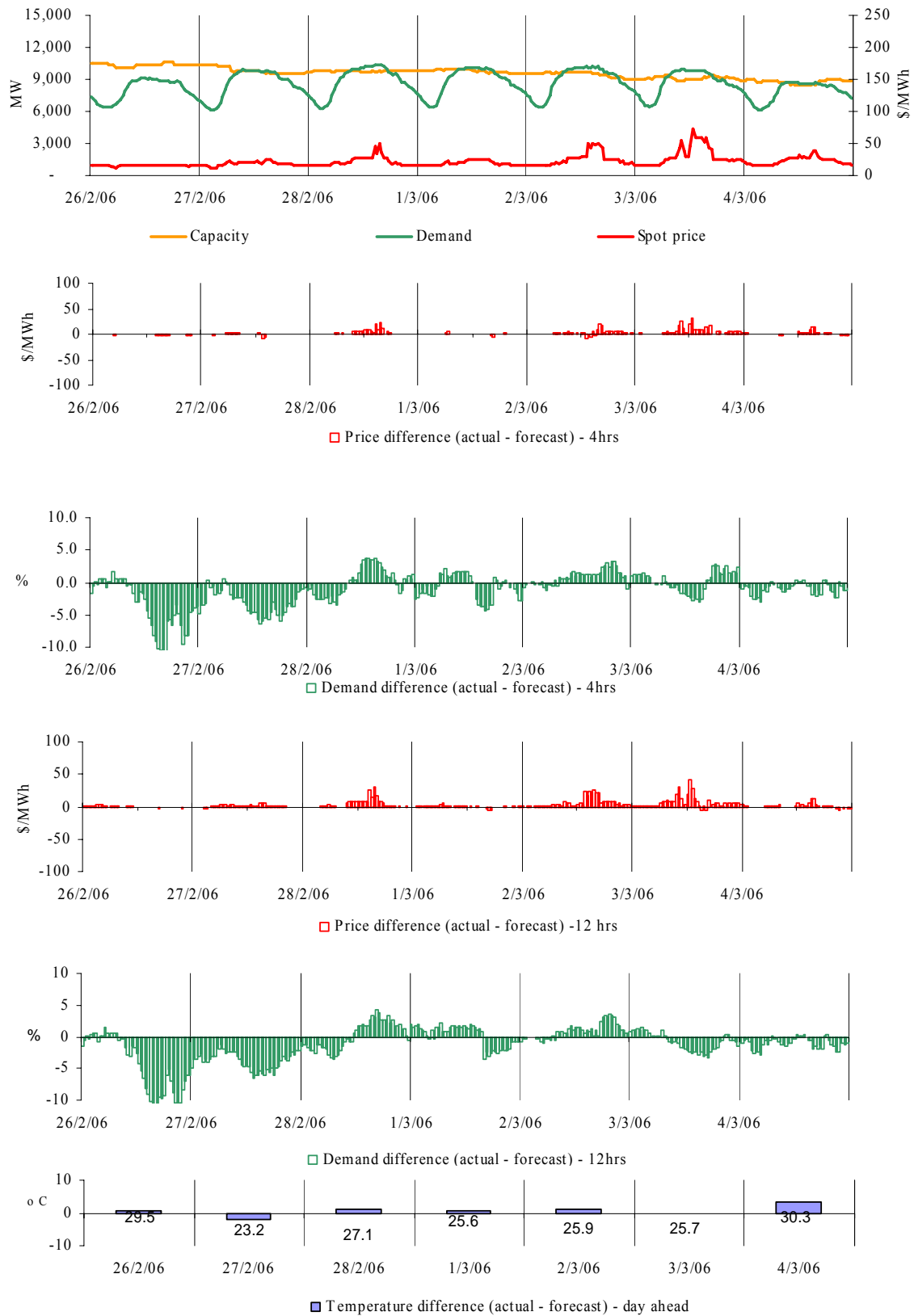
**Friday, 3 March**

<b>1:00 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	63.06	38.00	29.70
Demand (MW)	6623	6816	6816
Available capacity (MW)	8860	8858	8826

During the period demand was around 200MW lower than forecast, with prices aligned across the mainland. Forecast and actual available capacity were closely aligned.

There was no other significant rebidding.

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





There was 1 occasion in New South Wales where the spot price was greater than three times the weekly average price of \$23/MWh. This occurred on Friday afternoon.

### Friday, 3 March

<b>1:00 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	72.82	41.49	30.86
Demand (MW)	9830	10039	10035
Available capacity (MW)	8949	9244	9760

During this period available capacity and demand were lower than forecast, with prices aligned across the mainland.

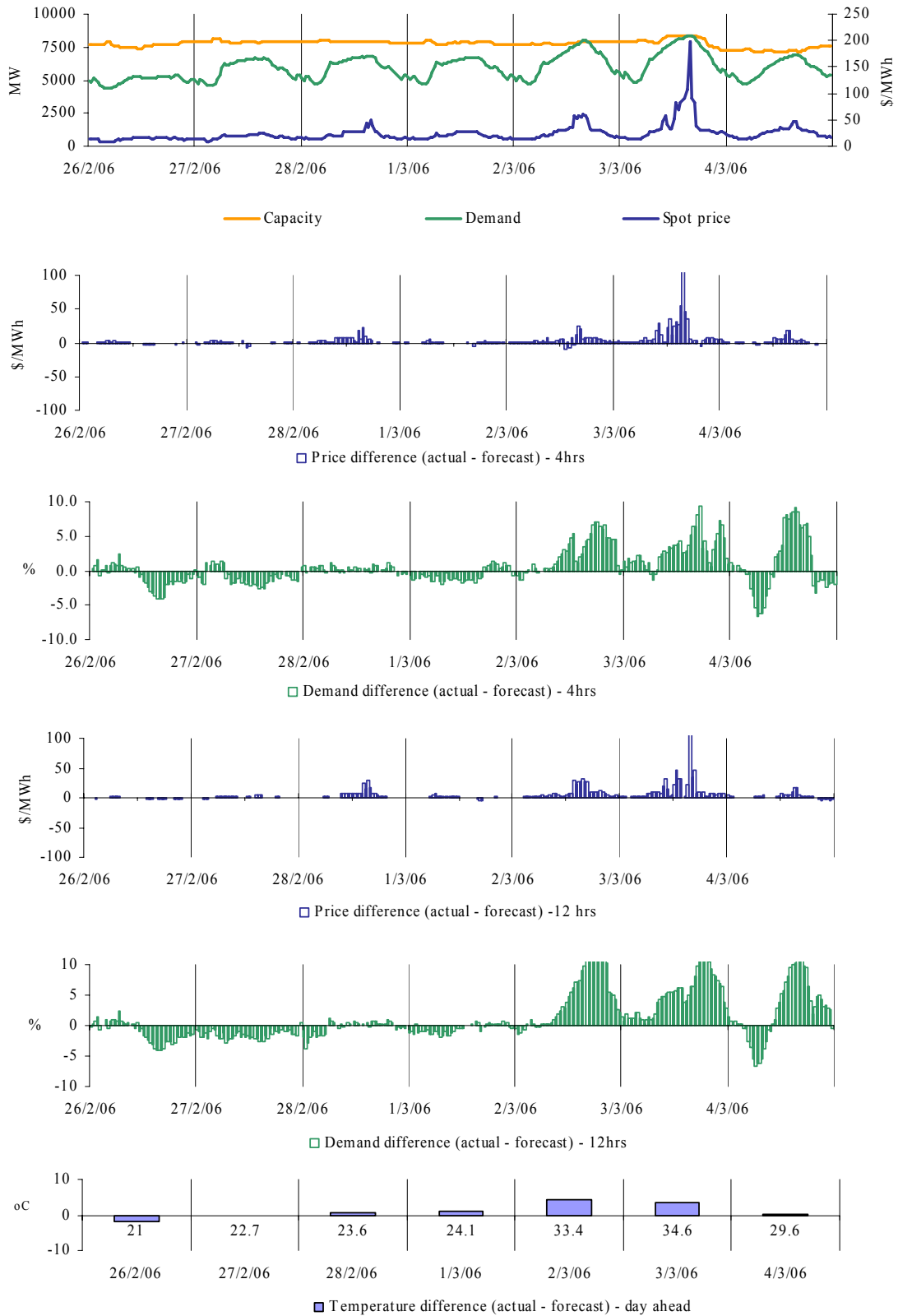
At around 8am Delta Electricity reduced the availability of Wallerawang unit 8 from 500 MW to zero. The reason given was “boiler problem::unit out of service”. Shortly after, the availability of Vales Point unit 6 was increased by 60 MW – all of which was priced at less than \$20/MWh and a further 110 MW of capacity was shifted from \$297/MWh and above to prices below \$20/MWh. The reason given was “load balance due to ww8::band shift”.

Between 8am and 10.30am Delta Electricity rebid 40 MW of capacity at Mount Piper from prices above \$9600/MWh to \$10/MWh. The rebid reasons given were “balance portfolio::band shift” and “avoid costly unit movement::band shift”. At around 10.30am the availability of Munmorah was reduced by 150 MW, following its return from an outage the previous day. A further rebid at 11am increased the availability by 20 MW. The reasons given were “return to service::ROC up change correction” and “return to service::capacity change”.

At around 11.45pm Macquarie Generation reduced the availability of Liddell unit 3 by 165 MW. The reason given was “rebid to other unit”. At the same time 170 MW of capacity at Bayswater was shifted from \$14/MWh to around \$85/MWh. At 12.30pm, Macquarie Generation rebid a further 200 MW at Bayswater from between \$14/MWh and \$87/MWh to above \$9000/MWh. The reason given for these rebids was “manage Snowy CSC/CSP constraint”.

There was no other significant rebidding.

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



There were 8 occasions in Victoria where the spot price was greater than three times the weekly average price of \$26/MWh. These occurred on Friday afternoon.

### Friday, 3 March

<b>1:00 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	82.20	45.90	34.70
Demand (MW)	7977	7640	7490
Available capacity (MW)	8397	8377	8620
<b>2:00 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	82.15	57.01	50.01
Demand (MW)	8159	7938	7655
Available capacity (MW)	8388	8432	8583
<b>2:30 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	86.75	56.37	87.00
Demand (MW)	8171	7941	7865
Available capacity (MW)	8366	8413	8569
<b>3:00 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	90.36	64.00	87.00
Demand (MW)	8252	7952	7919
Available capacity (MW)	8375	8405	8569
<b>3:30 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	108.06	52.75	87.00
Demand (MW)	8336	7909	7911
Available capacity (MW)	8364	8385	8569
<b>4:00 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	198.70	50.01	87.00
Demand (MW)	8399	7857	7860
Available capacity (MW)	8357	8385	8569
<b>4:30 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	91.57	45.90	56.91
Demand (MW)	8312	7786	7783
Available capacity (MW)	8346	8395	8569
<b>5:00 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	83.17	48.69	36.59
Demand (MW)	8274	7610	7603
Available capacity (MW)	8346	8380	8569

Available capacity was as much as 220 MW lower than forecast 12 hours prior to dispatch. Demand during the period was higher than forecast four hours to dispatch by as much as 670 MW.

From 1.30am International Power reduced the available capacity at Hazelwood by 37MW. The reasons given were, “condensate system limit (02:14)” and “cooling water limitation (02:14)”. A further 130MW of capacity was made unavailable throughout the course of the day. The rebid reasons given were “turbine limitation”, “cooling water limitation”, “draft plant limit”, “firing plant limit”, “boiler fouling”, “fuel limitation” and “plant limit relieved”.

At 6.00am Ecogen rebid 150 MW of capacity at Newport from prices above \$9300/MWh to less than \$31/MWh. The rebid reason given was “band adjust due to short notice contractual change@05:44”.

At 8.30am Hazelwood rebid 105 MW of capacity from prices less than \$14/MWh to between \$51/MWh and \$97/MWh. The rebid reason was “change in predispatch 07:58”. The rebid took effect from 1.30pm to 4.30pm.

Between 10.30am and 12.00pm Alinta rebid 76 MW of capacity at Bairnsdale Power Station from prices above \$1000/MWh to \$35/MWh, committing both units. The rebid reason given was “market conditions – price/demand expectation”.

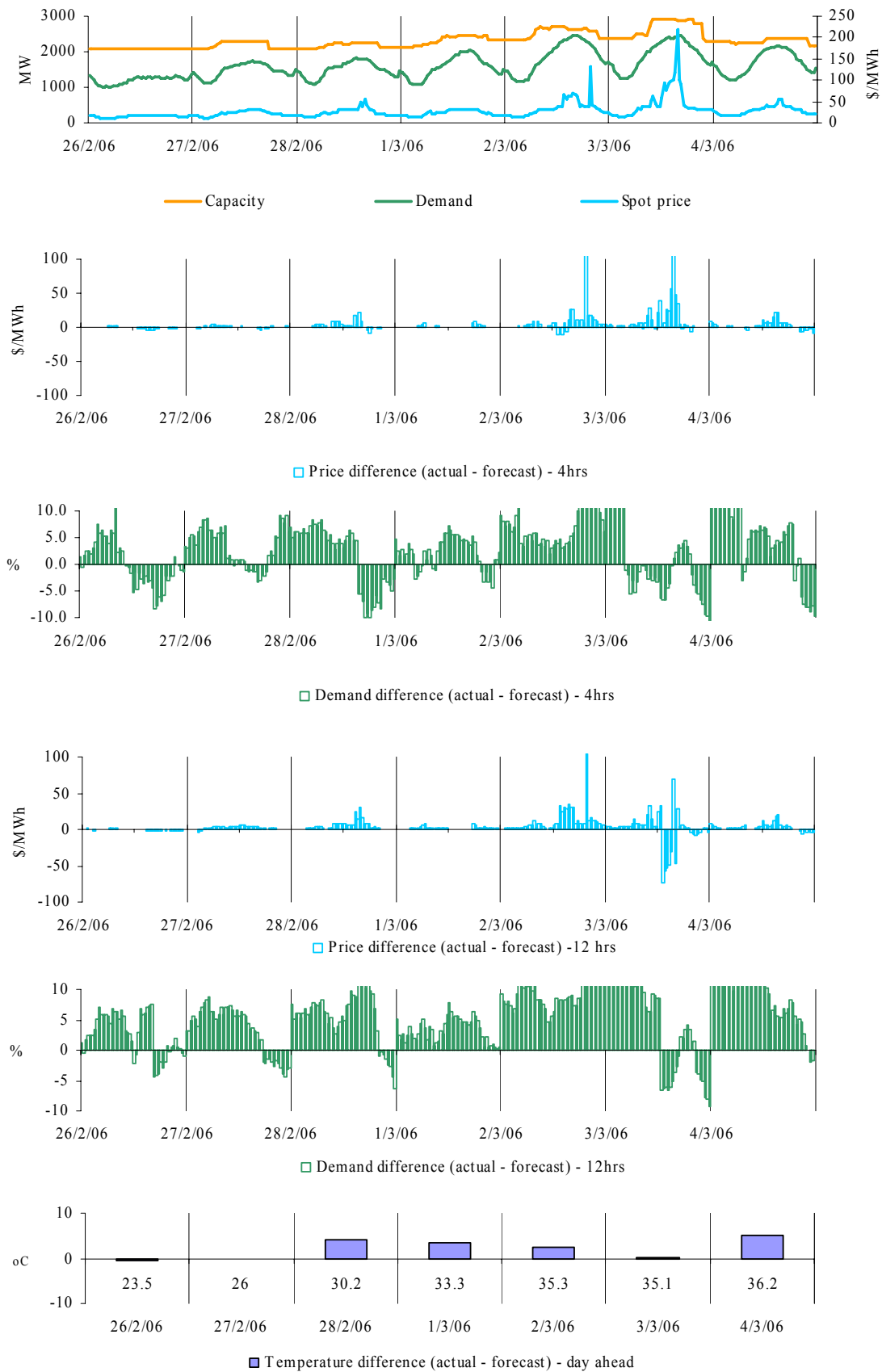
At 12.30pm LYMMCO rebid 200 MW of capacity at Loy Yang A from prices less than \$14/MWh to above \$8200/MWh, the rebid reason given was “actuals tracking ahead of forecast at 12:12”. At 3.30pm, LYMMCO rebid a further 50 MW of capacity from prices less than \$14/MWh to above \$4100/MWh, the rebid reason being “actual RRP tracking below 5minute predispatch at 15:01”.

Up until 3.55pm constraints in the Snowy region, related to the CSC/CSP trial, were forcing flows from Snowy into Victoria. At that time, a series of constraints were implemented by NEMMCO to manage the accumulation of negative residues. This action, which had the effect of re-orienting constraints from the Snowy to Victoria interconnector to the Murray generator, unconstrained the interconnector. Flows from Snowy to New South Wales continued to be counter price.

Throughout this period, generation at Murray was not dispatched while Upper and Lower Tumut on the New South Wales side of the Snowy scheme was generating around 1700MW.

There was no other significant rebidding.

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



There were 7 occasions in South Australia where the spot price was greater than three times the weekly average price of \$31/MWh. These occurred on Thursday and Friday.

### Thursday, 2 March

<b>8:00 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	132.67	26.71	29.60
Demand (MW)	2227	1696	1957
Available capacity (MW)	2575	2571	2713

Conditions at the time saw demand more than 500 MW higher than forecast 4 hours prior to dispatch – and still 460 MW higher as close as 90 minutes before the trading interval.

There was no significant rebidding.

### Friday, 3 March

<b>1:00 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	93.88	54.90	62.04
Demand (MW)	2331	2479	2485
Available capacity (MW)	2915	2918	2713
<b>2:30 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	96.28	69.17	149.00
Demand (MW)	2381	2487	2538
Available capacity (MW)	2915	2918	2713
<b>3:00 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	99.76	76.55	149.00
Demand (MW)	2389	2478	2537
Available capacity (MW)	2915	2918	2713
<b>3:30 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	118.33	61.51	149.00
Demand (MW)	2405	2412	2525
Available capacity (MW)	2908	2918	2713
<b>4:00 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	217.52	58.30	149.00
Demand (MW)	2426	2402	2515
Available capacity (MW)	2872	2915	2713
<b>4:30 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	101.49	53.50	149.00
Demand (MW)	2452	2396	2516
Available capacity (MW)	2872	2915	2713

During the period demand was slightly lower than forecast, with available capacity being up to 200 MW higher than forecast. Prices in South Australia reflected those in neighboring regions. The maximum temperature for the day reached 35 degrees, as forecast. There was little capacity offered between prices of \$50/MWh and \$300/MWh.

At 8am, an additional 220 MW of capacity from Pelican Point was made available. The reason given was “change in predispatch price”. This capacity was spread over price bands from \$0/MWh to around \$1000/MWh. Between 2.30pm and 3.30pm approximately 70 MW of capacity priced around \$300/MWh at Pelican Point was rebid to \$30/MWh. The rebid reasons were “change in demand forecast” and “plant testing”.

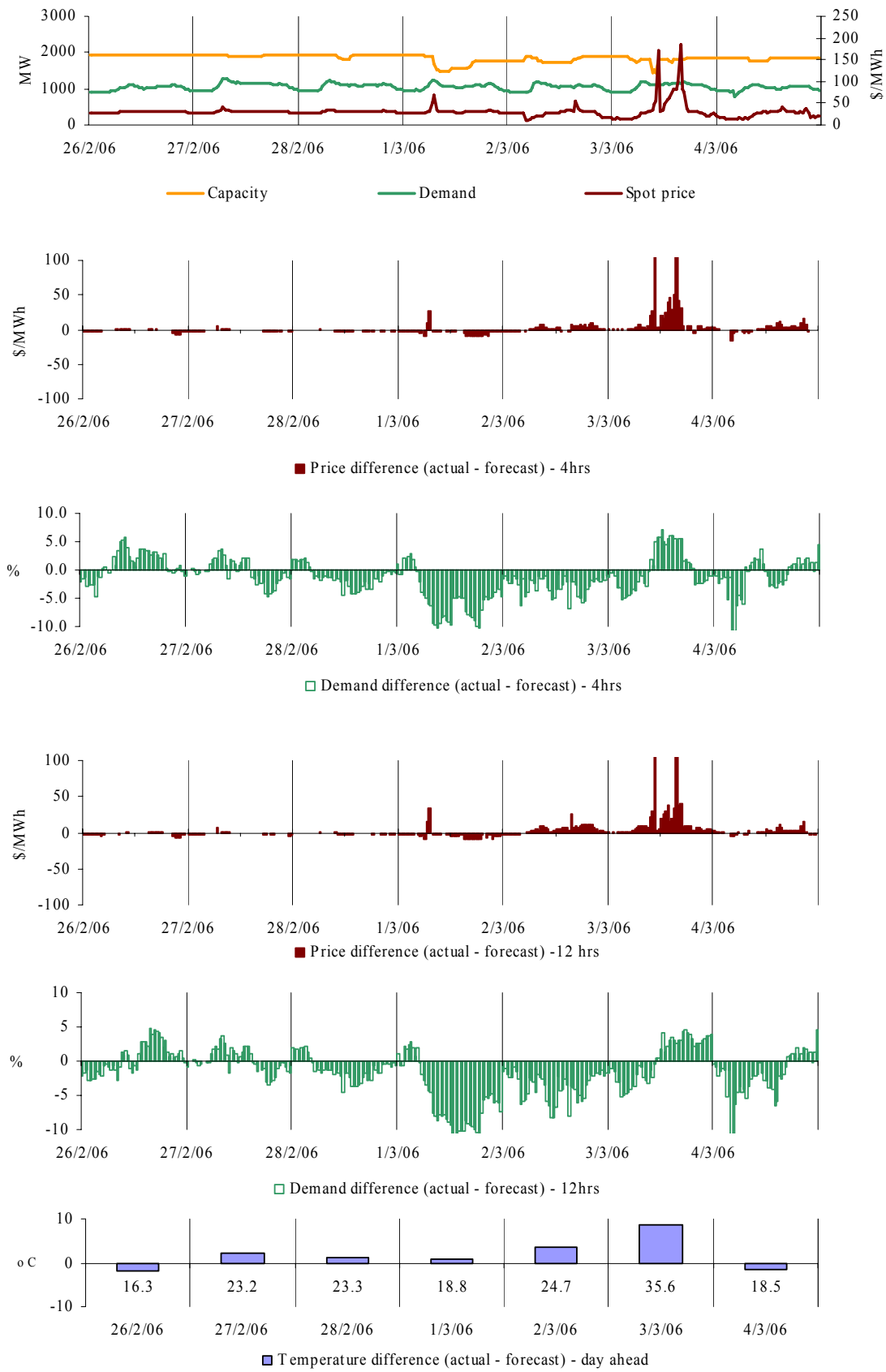
Between 12.30pm and 1pm AGL rebid 100 MW of capacity from Hallet power station from prices over \$9000/MWh to \$0/MWh. The rebid reasons given were “increase in 5 minute prices” and “increase in generation and decrease in price band. At around 3.30pm a further 35 MW was rebid from prices over \$9000/MWh to \$0/MWh. The reason given was “match output of station”. At this time the availability of the station was reduced by around 40 MW. The reason given was “units unavailable and extension of generation”.

At 2pm TRUenergy rebid 220 MW of capacity at Torrens Island from prices around \$150/MWh to almost \$5000/MWh. The reason given was “Market cond – significant change to PD conditions @14.04”.

During the period, Angaston rebid as much as 40 MW of its capacity from prices above \$250/MWh down to \$10/MWh. The rebid reasons included “optimise AS and energy::decrease energy band” and “changed forecast::decrease energy band”.

There was no other significant rebidding

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





There were 3 occasions in Tasmania where the spot price was greater than three times the weekly average price of \$31/MWh. These occurred on Friday.

### Friday, 3 March

<b>11:00 am</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	172.71	28.33	26.71
Demand (MW)	1121	1066	1126
Available capacity (MW)	1800	1800	1800

At 10.35am, the five-minute dispatch price increased from \$55/MWh to \$450/MWh. This increase coincided with a step change in the offer profile at Reece power station, which saw its availability at less than \$40/MWh reduced from 220 MW to zero and replaced with higher priced capacity. This step change was set up through day ahead offers.

There was no significant rebidding

### Friday, 3 March

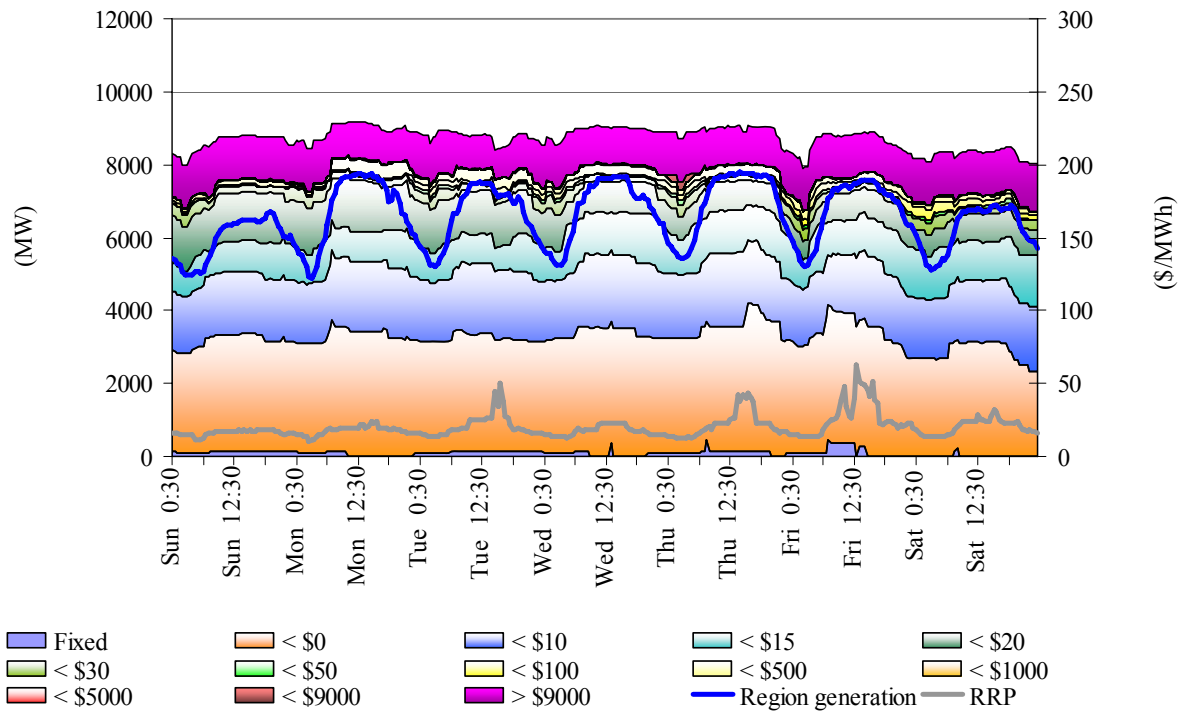
<b>3:30 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	99.82	48.46	65.23
Demand (MW)	1165	1100	1130
Available capacity (MW)	1800	1800	1800
<b>4:00 pm</b>	<b>Actual</b>	<b>4 hr forecast</b>	<b>12 hr forecast</b>
Price (\$/MWh)	183.95	45.94	65.23
Demand (MW)	1167	1106	1136
Available capacity (MW)	1808	1808	1808

During the period demand was slightly higher than forecast. Available capacity was as forecast. Prices were aligned with those in Victoria and South Australia.

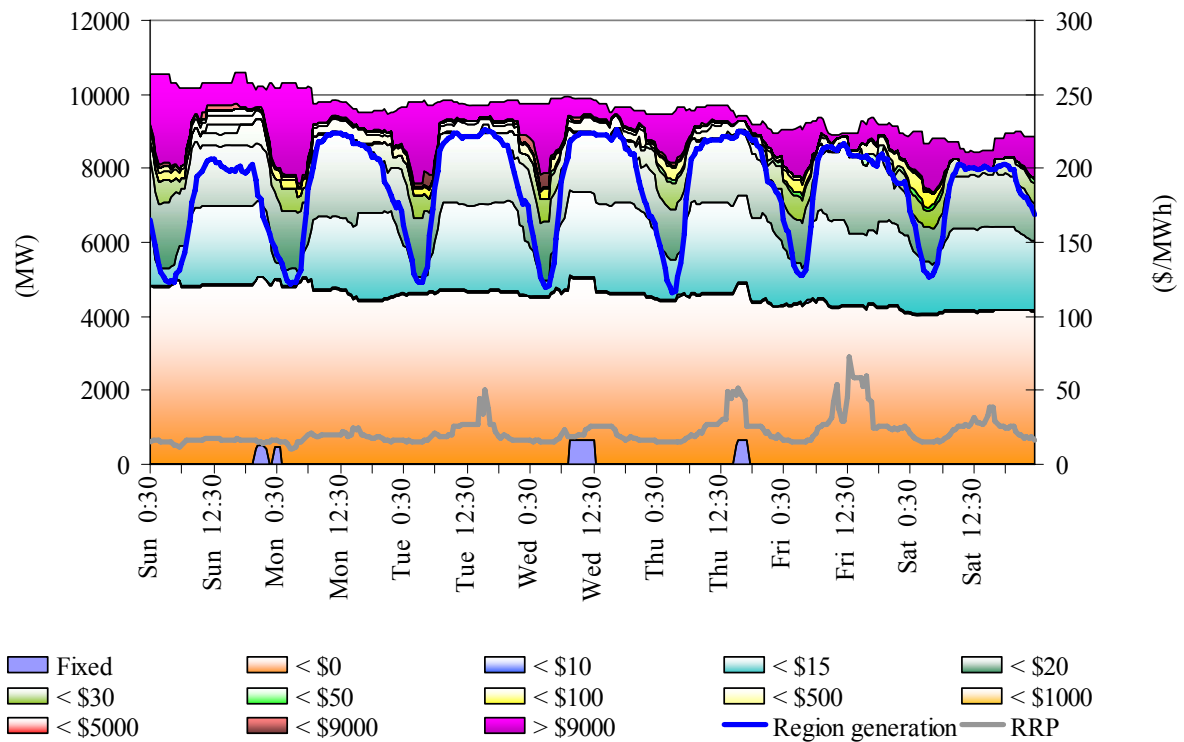
At around 3.00pm Hydro Tasmania rebid 333MW of capacity at a number of stations from prices between \$80/MWh and \$450/MWh to prices above \$9200/MWh. The rebid reason given was “change in price forecast”.

There was no other significant rebidding.

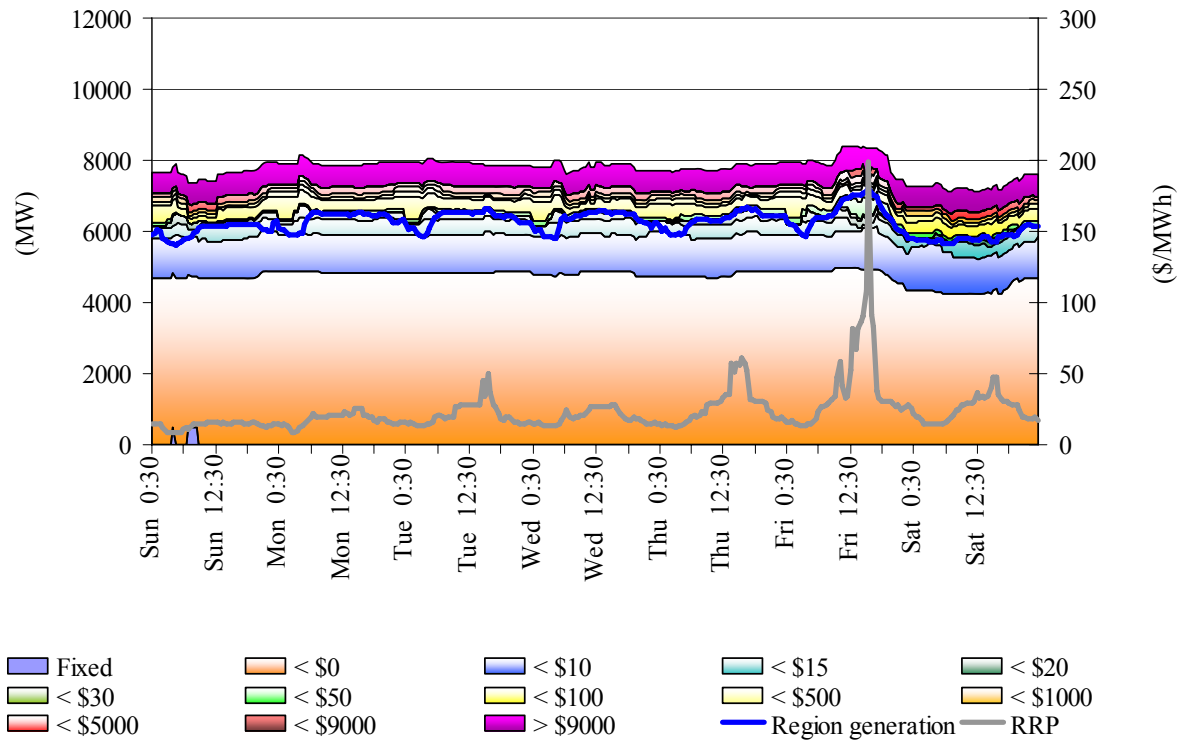
**Figure 51: Queensland closing bid prices, dispatched generation and spot price**



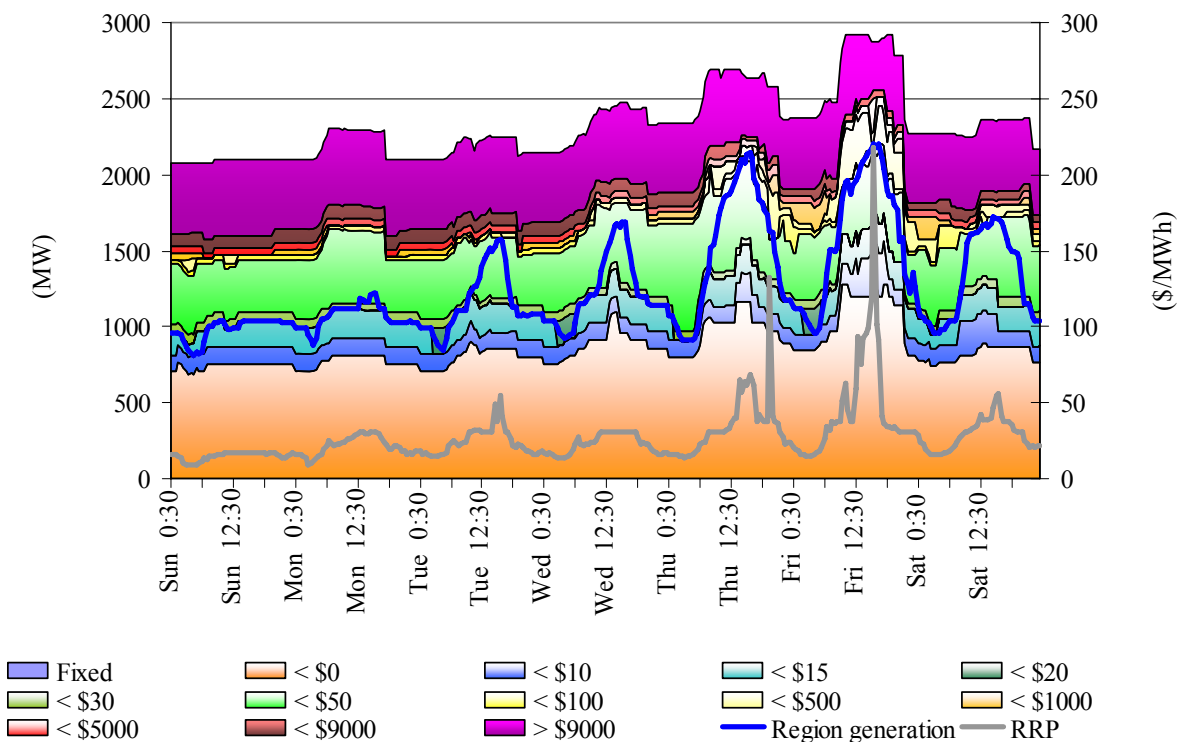
**Figure 52: New South Wales closing bid prices, dispatched generation and spot price**



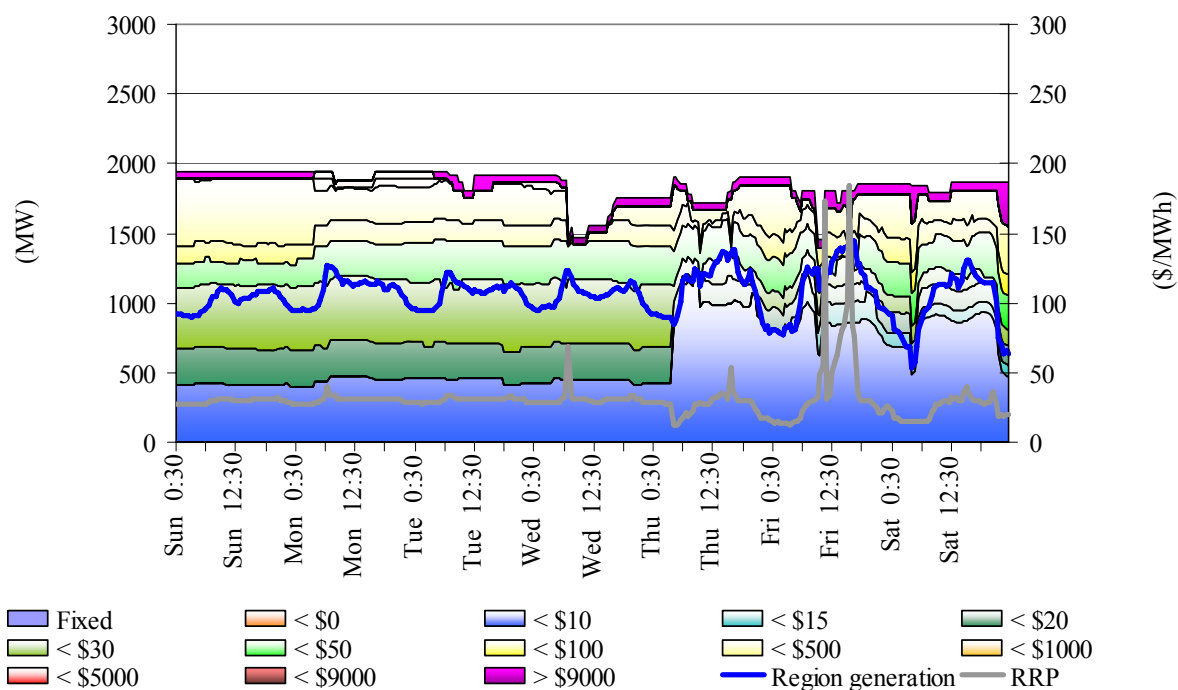
**Figure 53: Victoria closing bid prices, dispatched generation and spot price**



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



**Figure 55: 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 \$163 000 or 0.2 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. On Thursday, a 30 day trial of Basslink commenced, which allows energy and some ancillary services to be shared across the interconnector. From that time, the requirement for ancillary services varied considerably with changes to flows on the interconnector.

**Figure 56: 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	0.75	0.49	0.87	0.38	0.19	0.30	0.84	1.18
Previous week	0.82	0.56	1.49	0.73	0.19	0.22	0.84	1.50
Last quarter	1.76	0.73	1.15	1.54	0.39	2.28	5.00	1.93
Market Cost (\$1000s)	34	22	55	8	1	2	17	25
% of energy market	0.04%	0.03%	0.06%	0.01%	0.00%	0.00%	0.02%	0.03%

The total cost of ancillary services in Tasmania for the week was around \$49 000 or 0.90 per cent of the total turnover in the energy market in Tasmania. Figure 57 summarises for Tasmania the prices and costs for the eight frequency control ancillary services.

**Figure 57: 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	2.05	0.30	0.48	0.80	0.29	0.18	0.31	0.44
Previous week	2.54	0.25	0.25	0.26	0.32	0.25	0.25	0.25
Last quarter	7.89	1.05	1.05	1.58	4.43	1.06	1.06	1.97
Market Cost (\$1000s)	16	3	6	5	4	5	7	3
% of energy market	0.29	0.06	0.10	0.09	0.07	0.10	0.14	0.05

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

**Figure 58: daily frequency control ancillary service costs**

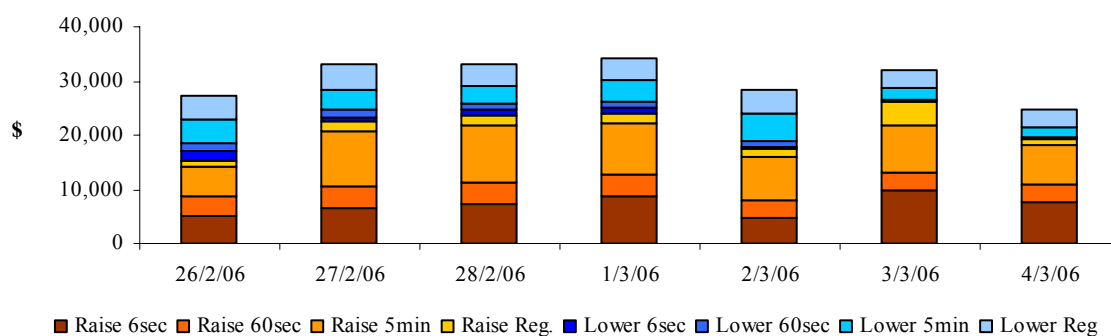
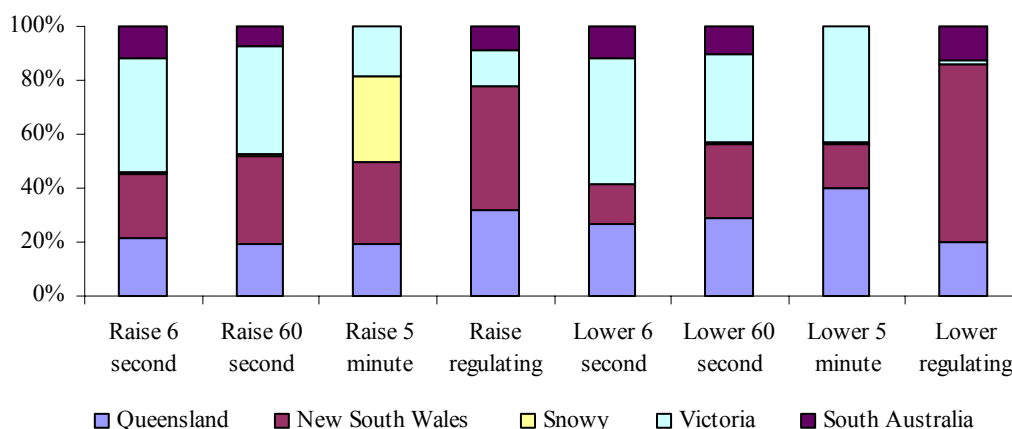


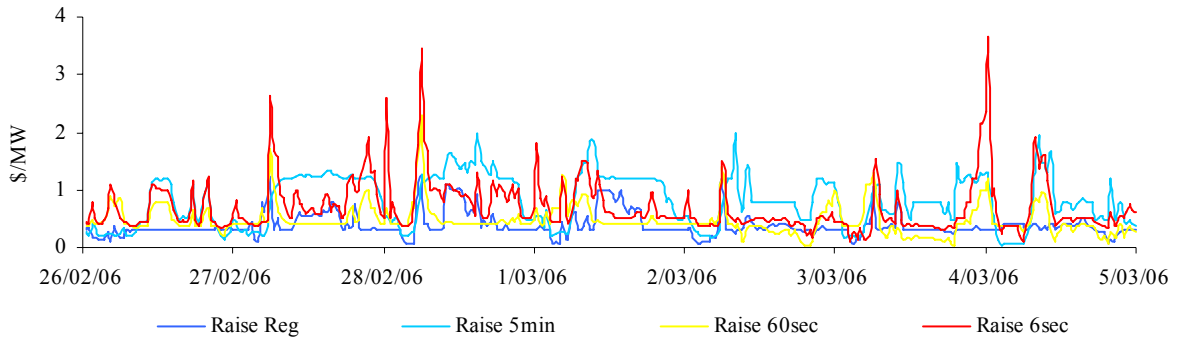
Figure 59 shows the contribution, on a percentage basis, that frequency control ancillary service providers are utilised (in each mainland region) to satisfy the total requirement for each service.

**Figure 59: regional participation in ancillary services on the mainland**

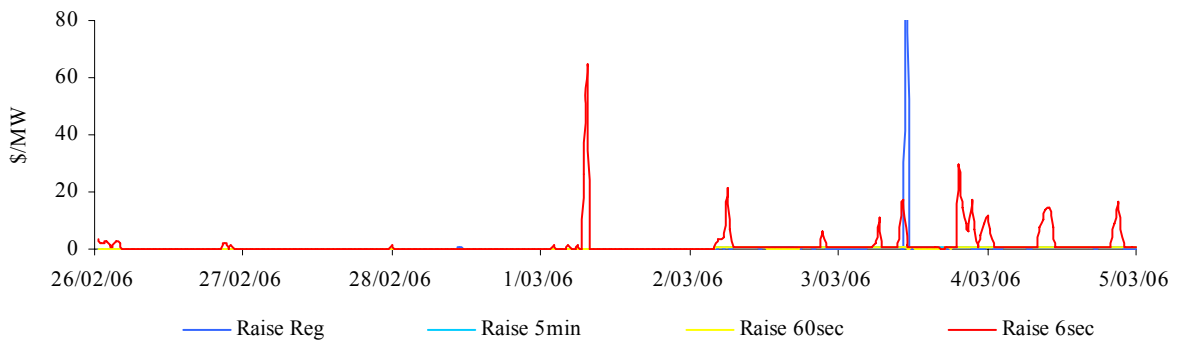


Figures 60 and 61 show 30-minute prices for each frequency control ancillary service throughout the week.

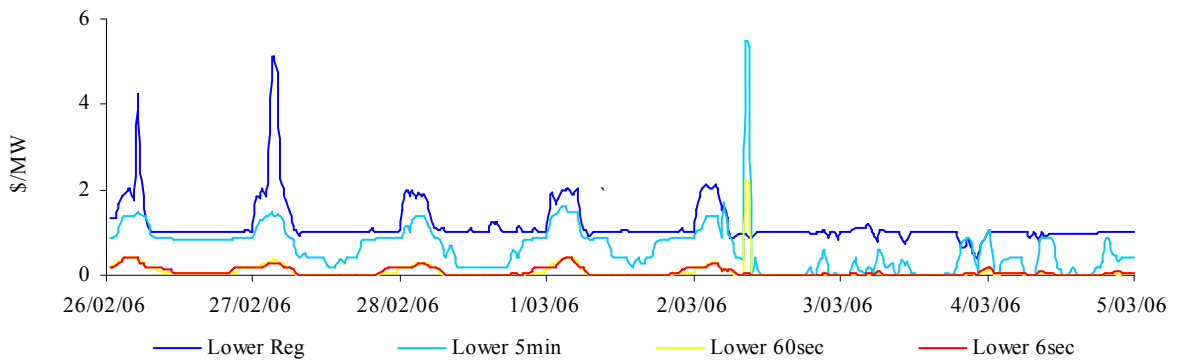
**Figure 60: prices for raise services**



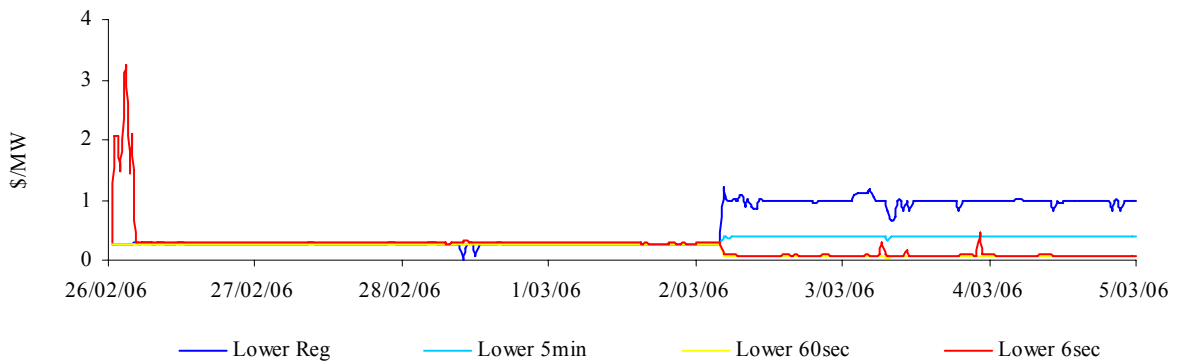
**Figure 60A: prices for raise services - Tasmania**



**Figure 61: prices for lower services**

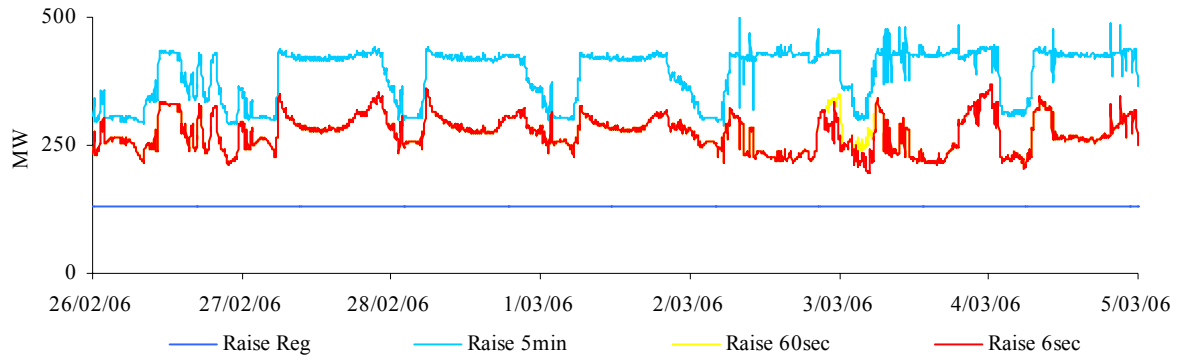


**Figure 61A: prices for lower services - Tasmania**

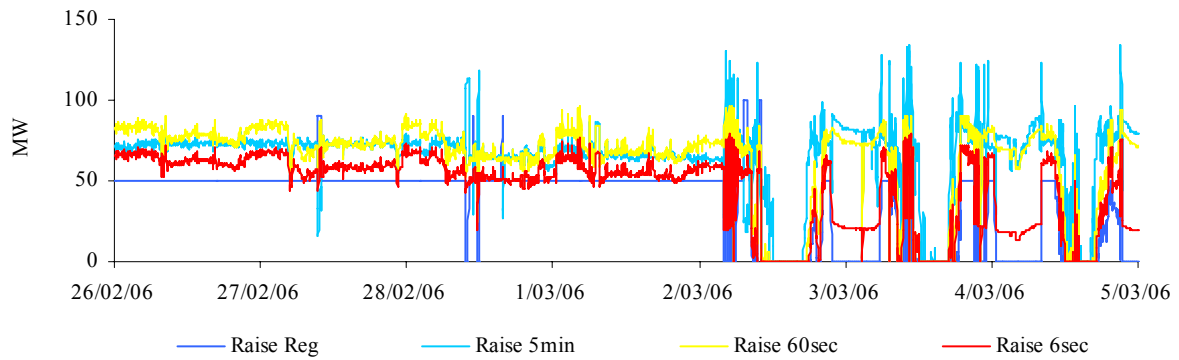


Figures 62 and 63 present for both raise and lower frequency control services the requirement, established by NEMMCO, for each service to satisfy the frequency standard.

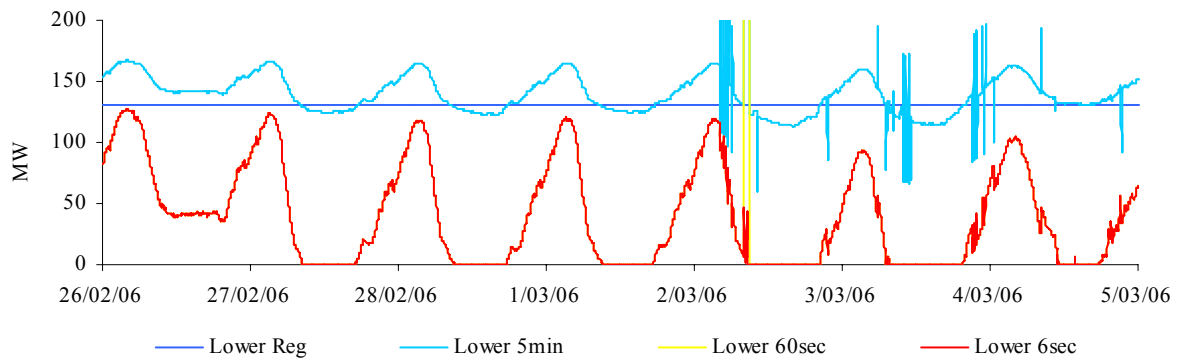
**Figure 62: raise requirements**



**Figure 62A: raise requirements - Tasmania**



**Figure 63: lower requirements**



**Figure 63A: lower requirements - Tasmania**

