Market analysis

AUSTRALIAN ENERGY REGULATOR

25 SEPT – 1 OCT 2005

Spot prices were aligned across the mainland for 90 per cent of the time, ranging from $22/MWh in Queensland to $29/MWh in South Australia. These prices were consistent with the previous week. Mild spring conditions were reflected in lower peak demand across the market.

In Tasmania, spot prices averaged $73/MWh, up slightly from the previous week.

Turnover in the energy market for the mainland was $84 million, with a total cost of ancillary services for the week of around $423 000 or 0.5 per cent of turnover. In Tasmania turnover in the energy market was $14 million, with ancillary services totaling $138,000 or one per cent of turnover.

Demand forecasts produced 4 and 12 hours ahead varied from actual by more than 5 per cent in 18 per cent of all trading intervals across the market. In South Australia demand errors occurred in around half of all trading intervals on the same basis. Significant variations between forecast and actual prices occurred in 47, or 14 per cent of all trading intervals. Changes to generator availability was the main contributor.

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 to date. 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	22	24	25	29	73
Previous week	21	26	26	30	63
Same quarter last year	27	31	28	36	-
Financial year to date	22	29	30	34	99
% change from previous week	▲6%	▼9%	▼4%	▼1%	▲16%
% change from same quarter last year	▼17%	▼23%	▼10%	▼20%	-
% change from last financial year	▼18%	▼9%	▲6%	▼7%	-

Figure 2: national demand and spot prices

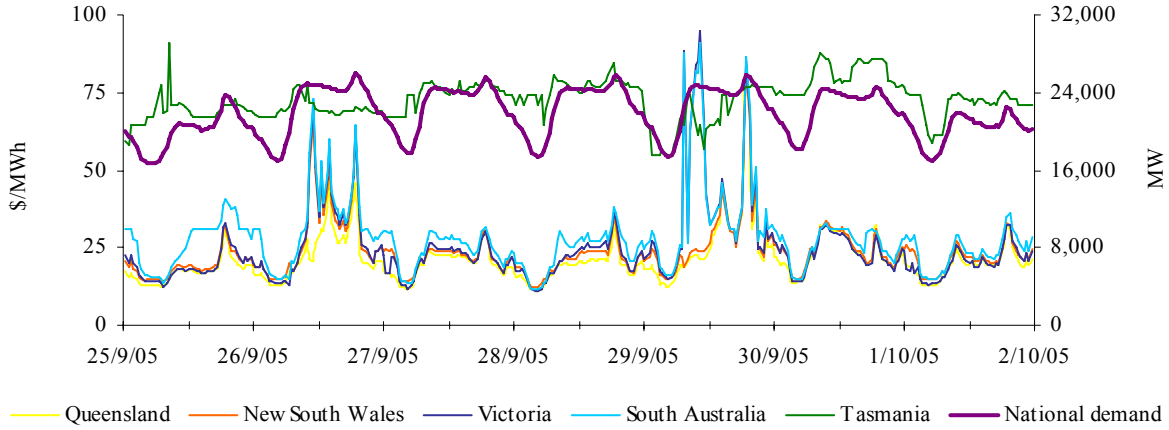


Figure 3: volatility index during peak periods

	QLD	NSW	VIC	SA	TAS
Last week	0.56	0.57	0.88	0.66	0.18
Previous week	0.37	0.54	0.66	0.52	0.18
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

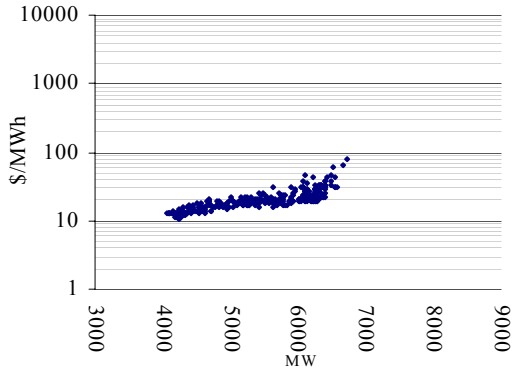


Figure 5: New South Wales

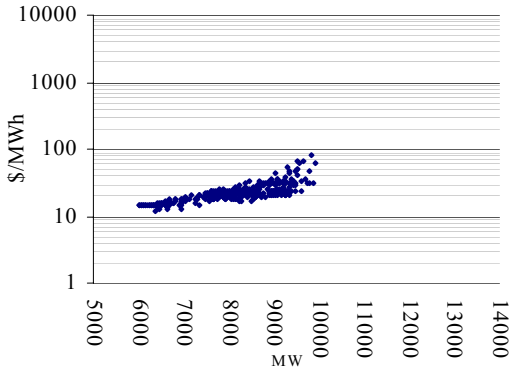


Figure 6: Victoria

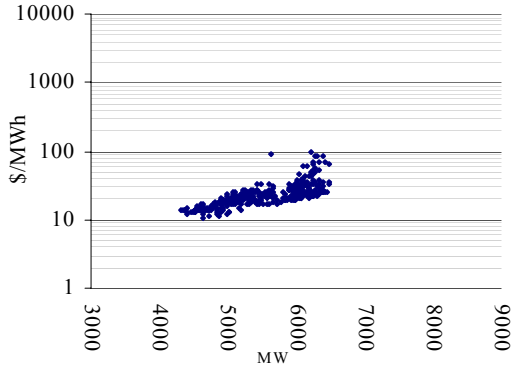


Figure 7: South Australia

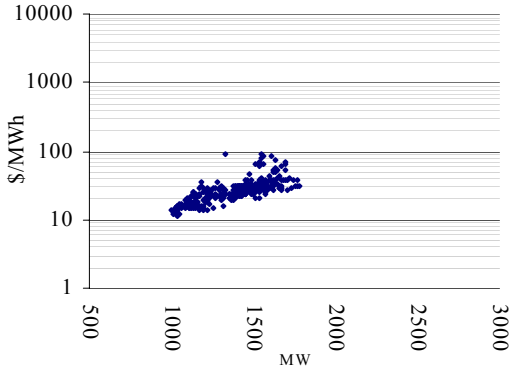
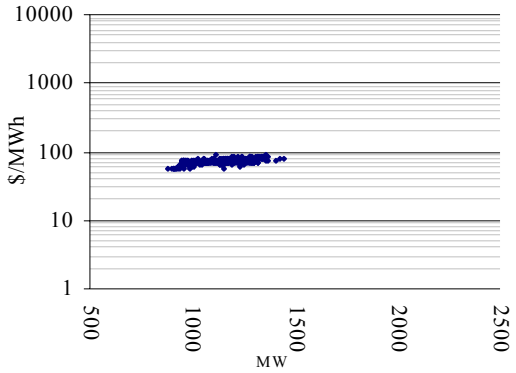


Figure 8: Tasmania



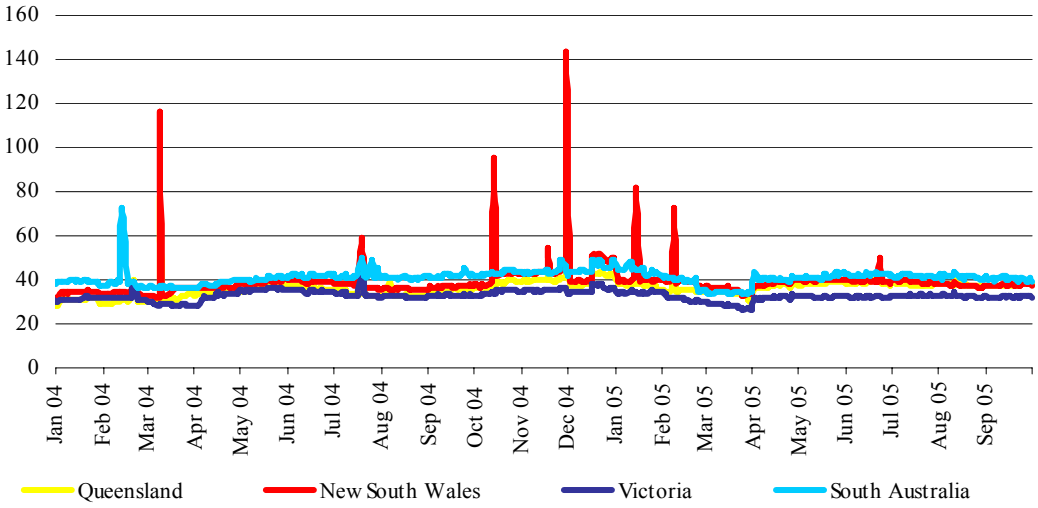
The maximum spot prices for the week ranged from $82/MWh in Queensland to $95/MWh in Victoria.

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	37.41	37.54	37.39	37.80	37.78
New South Wales	37.46	37.53	37.32	37.52	37.55
Victoria	32.01	32.44	32.02	31.99	32.39
South Australia	40.48	40.69	39.23	40.57	40.51

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

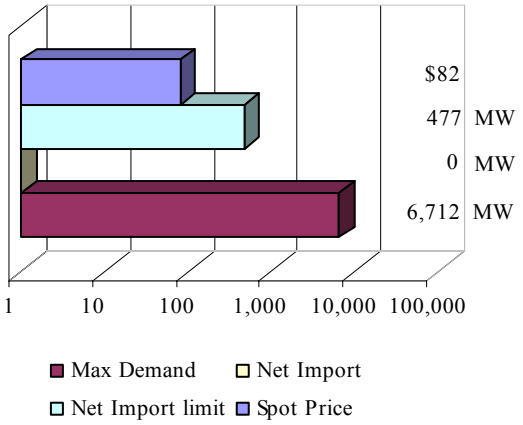


Figure 12: New South Wales

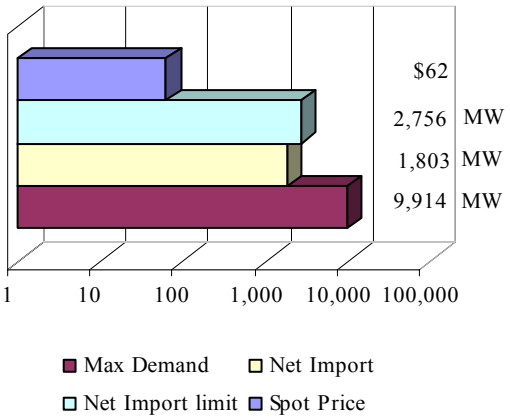


Figure 13: Victoria

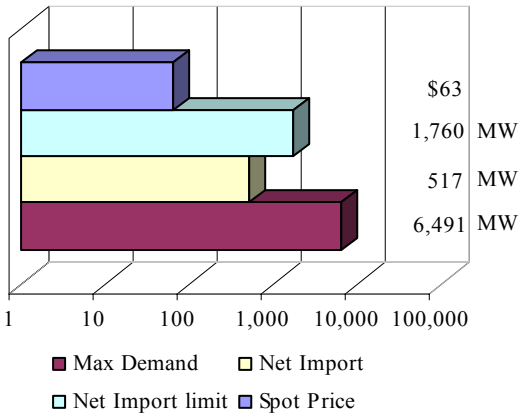
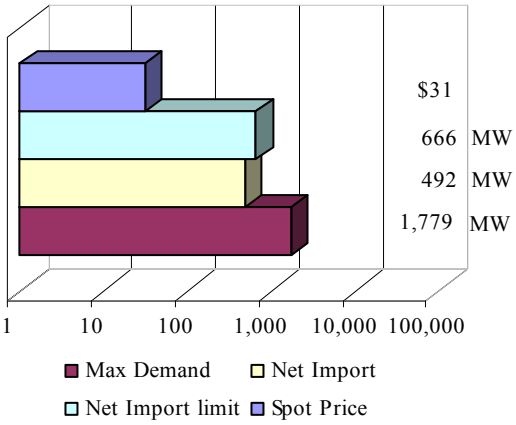


Figure 14: South Australia



In Tasmania the demand reached a maximum of 1 443MW at 8.30am on Monday. The spot price at the time was $77/MWh.

Price variations

There were 47 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

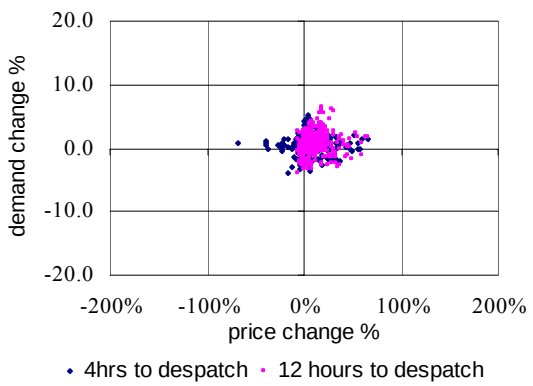


Figure 16: New South Wales

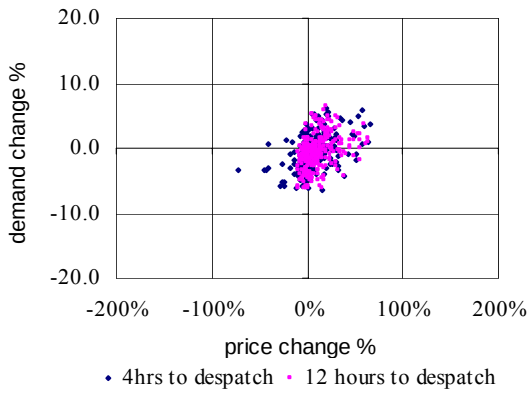


Figure 17: Victoria

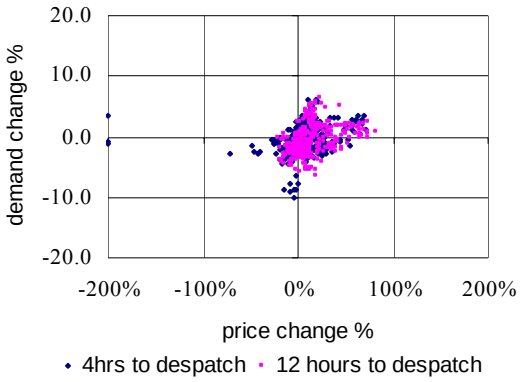


Figure 18: South Australia

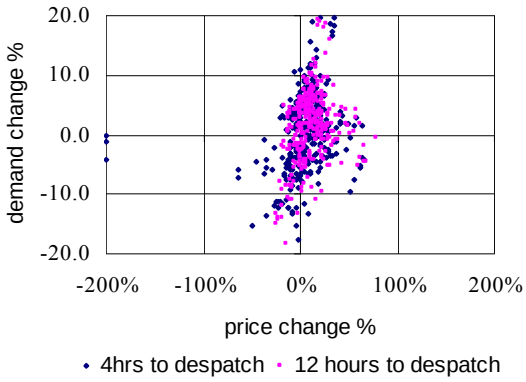


Figure 19: Tasmania

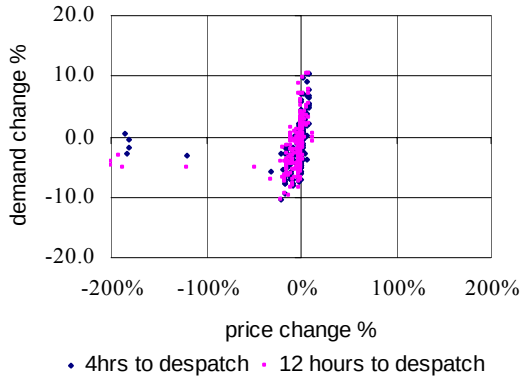
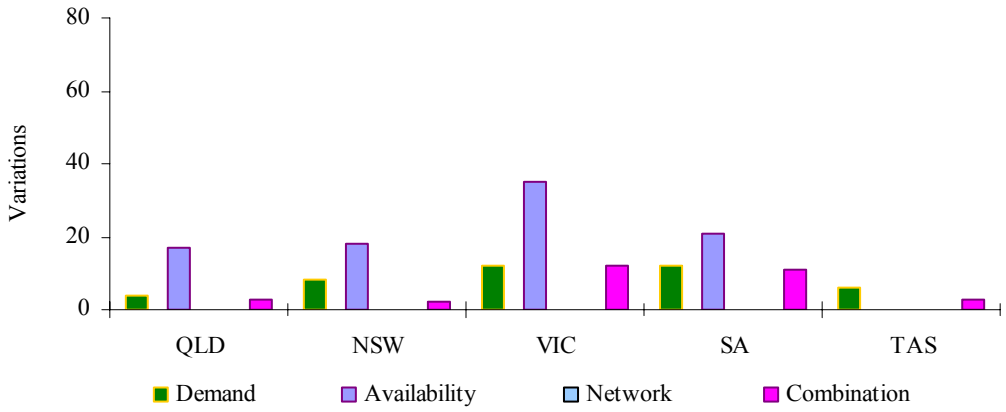


Figure 20 summarises the number and most probable reason for variations between forecast and actual prices.

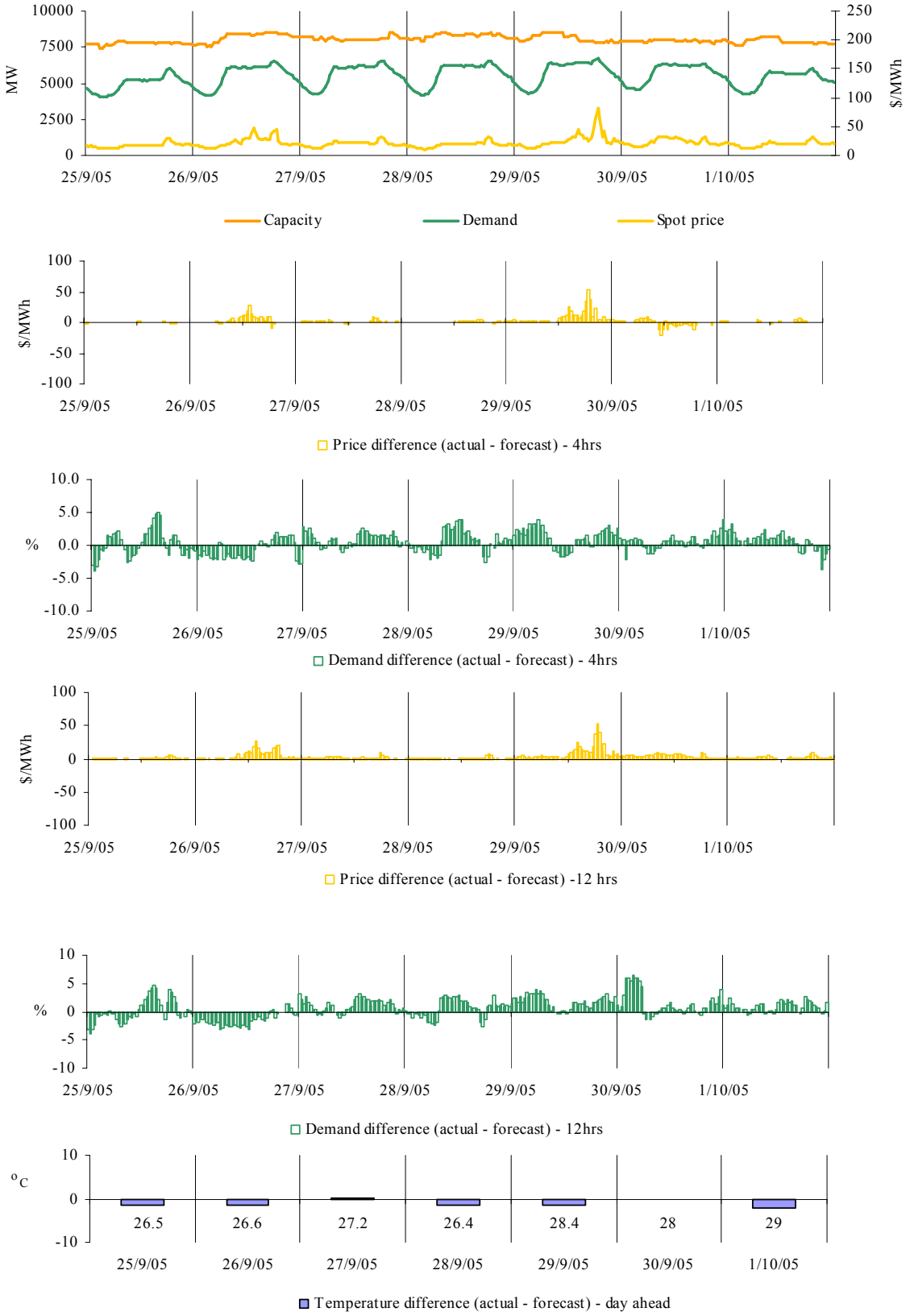
Figure 20: reasons for variations between forecast and actual prices



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 was one occasion in Queensland where the spot price was greater than three times the weekly average price of $22/MWh. This occurred at 7pm on Thursday.

Thursday, 29 September

7:00 pm	Actual	4 hr forecast	12 hr forecast
Price ($/MWh)	81.69	28.07	28.27
Demand (MW)	6 712	6 615	6 601
Available capacity (MW)	7 802	8 556	8 561

Conditions at the time saw prices in Queensland aligned with the other regions. Demand across the mainland was around 350MW higher than forecast four hours to dispatch. Available capacity was lower by more than 1 000MW on the same basis.

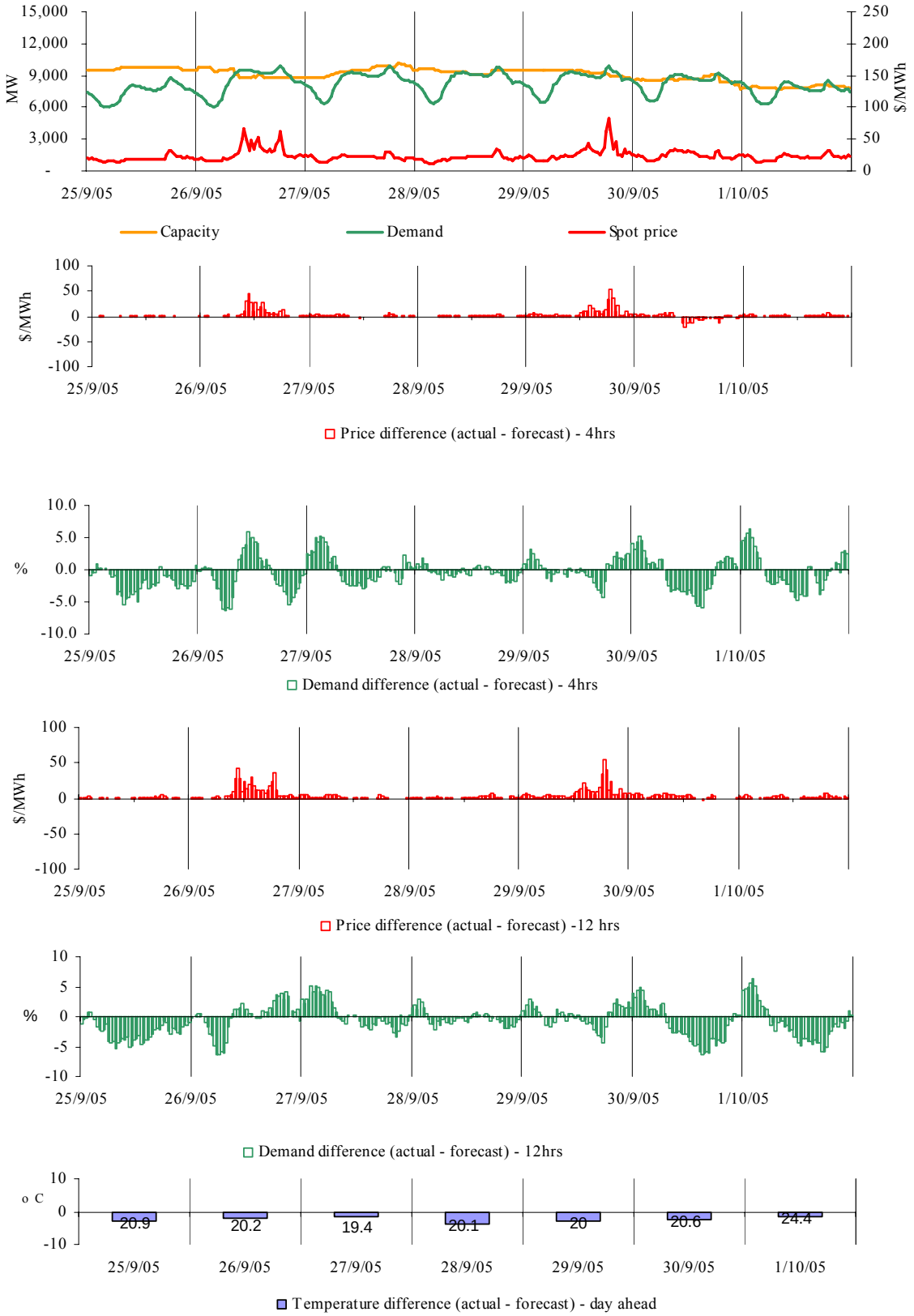
From 11am, over a number of rebids, Callide Power reduced the availability of Callide C unit 3 for the afternoon to as low as 135MW . The unit had been forecast to be at full load for the evening peak, however, a rebid made at 4.13pm extended the units reduced availability, and a rebid at 5.54pm further reduced the availability to zero. All of this capacity, 405MW, was priced at less than $10/MWh. The rebid reasons given were “Plant failure”.

At 2.15pm, Tarong Energy’s Tarong unit 4 tripped from 350MW. The unit was initially expected to return to service within two hours. The return of the unit was delayed by a number of rebids during the afternoon with the unit re-synchronising around 8pm. All of this capacity was priced at less than $20/MWh. The rebid reasons given were “P unit trip:: Adjust bid”, “P Extend unit outage:: Adjust bid” and “P Delay RTS:: Adjust profile”. From 5.30pm, 480MW of capacity was rebid to prices of zero at Wivenhoe. The rebid reasons given were “Tarong 4 delayed RTS:: Pf re-arrangement”, “Prevent unit cycling:: Adjust profile” and “Change in PD:: Adjust profile”.

At 5.12pm, Enertrade rebid 110MW of capacity at Collinsville from prices of around $100/MWh to zero. The rebid reason given was “Material change in market conditions:: Change MW Distrib”.

There was no other significant rebidding.

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



There was one occasion in New South Wales where the spot price was greater than three times the weekly average price of $24/MWh. This occurred at 7pm on Thursday.

Thursday, 29 September

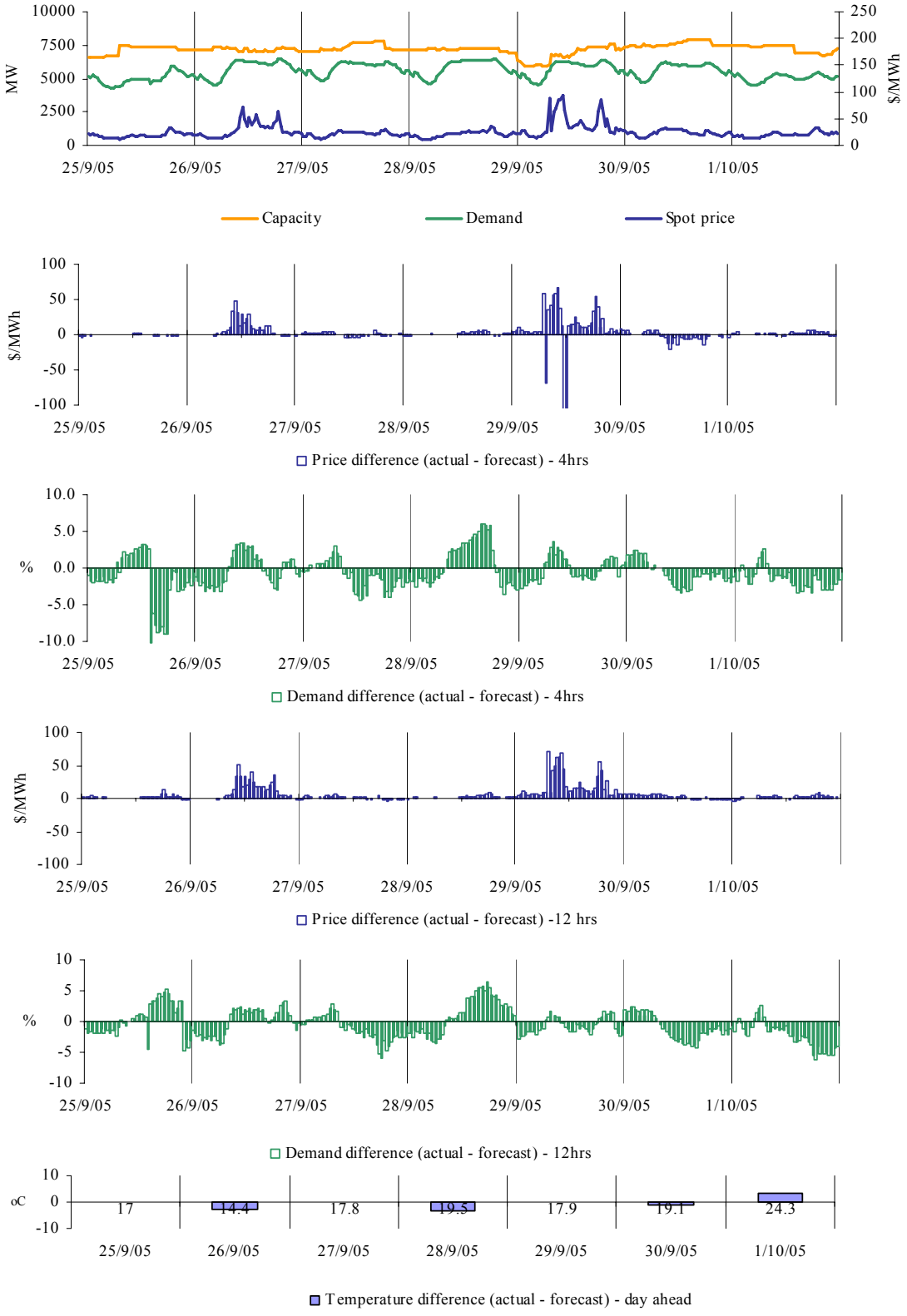
7:00 pm	Actual	4 hr forecast	12 hr forecast
Price ($/MWh)	83.64	30.00	30.00
Demand (MW)	9 847	9 766	9 768
Available capacity (MW)	9 091	9 088	9 553

Conditions at the time saw prices in New South Wales aligned with the other regions. Demand across the mainland was around 350MW higher than forecast four hours to dispatch. Available capacity was lower by more than 1 000MW on the same basis.

At 2.26pm, Macquarie Generation reduced the availability of Liddell unit 4 by 365MW to 150MW for the trading interval, eventually the unit was shutdown by 8pm. Up to 250MW of this capacity was priced at less than $20/MWh. The rebid reason given was “O/S Profile”. At the same time, a total of 40MW of capacity at Liddell units 1 and 3, was rebid from prices above $9 000/MWh to $14/MWh, offsetting in part the reduction at Liddel unit 4. The rebid reasons given were “Fuel air stability” and “Adjustment due to LD04”.

There was no other significant rebidding.

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



There were five occasions in Victoria where the spot price was greater than three times the weekly average price of $25/MWh. These occurred during the morning load rise on Thursday and at 7pm that evening.

Thursday, 29 September

7:30 am	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	88.47	29.47	16.41
Demand (MW)	5 645	5 487	5 605
Available capacity (MW)	6 024	6 143	7 342
9:30 am	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	84.15	27.83	22.33
Demand (MW)	6 312	6 158	6 266
Available capacity (MW)	6 748	6 975	7 342
10:00 am	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	85.15	27.68	22.69
Demand (MW)	6 279	6 144	6 241
Available capacity (MW)	6 764	6 975	7 342
10:30 am	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	94.68	27.82	25.13
Demand (MW)	6 233	6 153	6 247
Available capacity (MW)	6 578	6 975	7 342

Conditions at the time saw combined demand across Victoria and South Australia close to forecast.

At 1am, International Power reduced the availability of Loy Yang B by 350MW for the majority of the day. Most of this capacity was priced at less than $10/MWh. The rebid reason given was “Changing plant conditions”.

At around the same time, LYMMCO reduced the availability of Loy Yang A by 675MW. All of this capacity was priced at less than $20/MWh. The rebid reason given was “Managing coal limitations”. At other times, during this period, around 585MW of this capacity was priced above $250/MWh. The rebid reason given were “Managing coal limitations” and “Managing coal reserves”.

Over a number of rebids from 5am, International Power reduced the availability of Hazelwood power station by as much as 235MW. All of this capacity was priced at less than $20/MWh. The rebid reasons given included “Firing plant limit” and “Fuel limitations”.

At 7.40am, 124MW of capacity at Valley Power was rebid from prices around $100/MWh and $400/MWh to zero. The rebid reason given was “Change in price forecasts”.

From 6.30am, Alinta rebid 90MW of capacity at Bairnsdale from prices above $9 000/MWh to prices as low as zero. The rebid reasons given were “Market conditions – price/demand expectation”.

From 7.25am, Ecogen rebid around 280MW of capacity at Jeeralang to prices of less than zero. Around 200MW of this capacity had been priced at more than $9 000/MWh. The rebid reasons given were “Commit unit due to market conditions”, Adj to unit commitment due to pd conditions” and “plant conditions adj to unit availability”.

There was no other significant rebidding.

Thursday, 29 September

7:00 pm	Actual	4 hr forecast	12 hr forecast
Price ($/MWh)	85.26	30.14	30.48
Demand (MW)	6 388	6 361	6 360
Available capacity (MW)	7 315	7 626	7 265

Conditions at the time saw prices in Victoria aligned with the other regions. Demand across the mainland was around 350MW higher than forecast four hours to dispatch. Available capacity was lower by more than 1 000MW on the same basis.

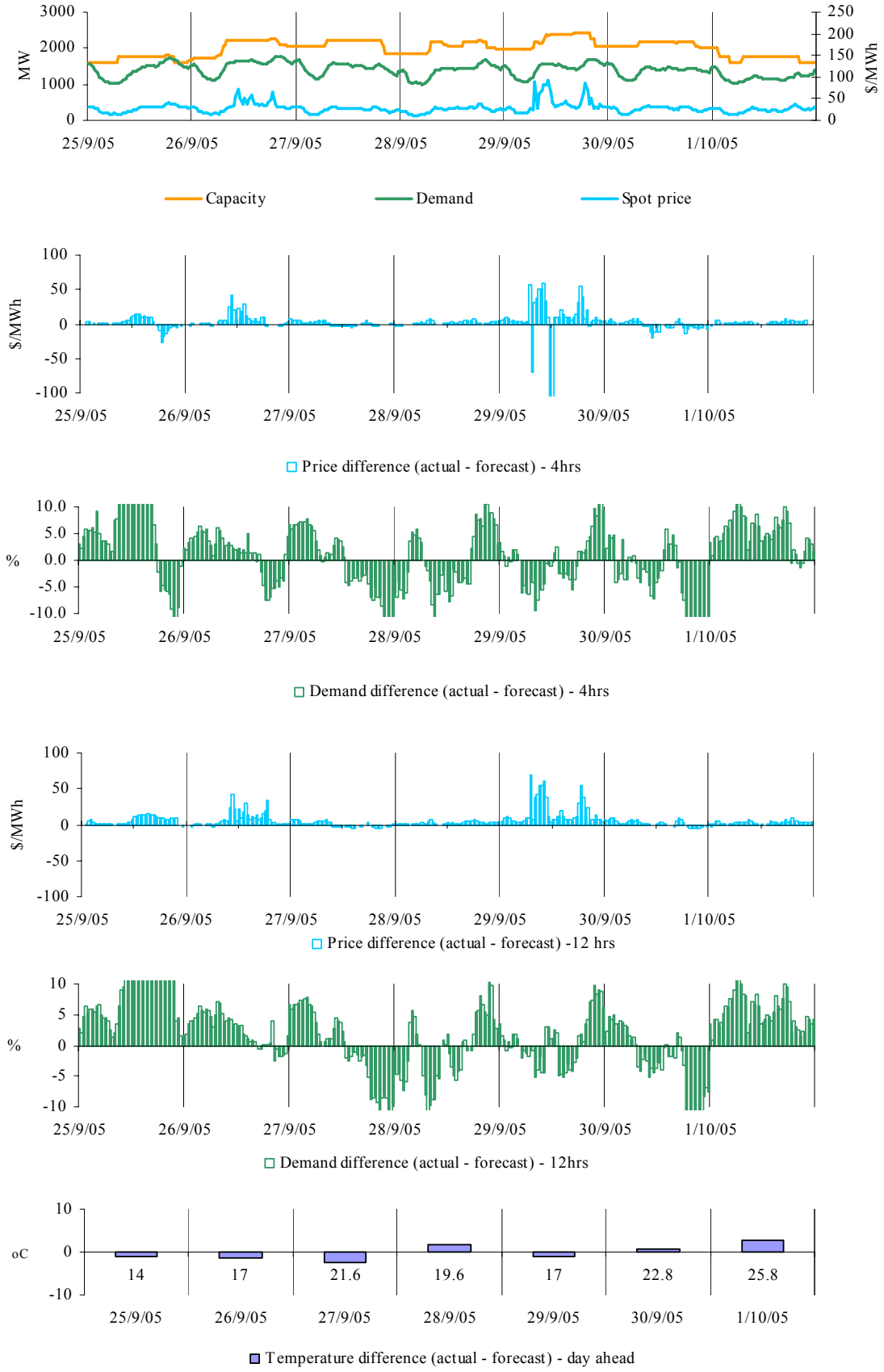
Coal problems at Loy Yang plagued both Loy Yang A and B throughout most of the day, resulting in a combined reduction in output of just over 900MW compared to earlier forecasts.

Alinta rebid 90MW of capacity at Bairnsdale from prices above $9 000/MWh to prices of $35/MWh over two rebids at 5.03pm and 5.47pm. The rebid reason given was "Market conditions – Price/demand expectation".

Ecogen rebid 410MW of capacity at Newport from prices above $9 000/MWh to prices below $50/MWh at 5.12pm. The rebid reason given was "Adj to unit commitment due to PD conditions".

There was no other significant rebidding.

Figures 39-44: 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 $29/MWh. These occurred during the morning load rise on Thursday.

Thursday, 29 September

7:30 am	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	87.54	31.00	18.19
Demand (MW)	1 325	1 378	1 331
Available capacity (MW)	2 169	2 169	2 169
10:30 am	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	90.97	31.00	30.01
Demand (MW)	1 546	1 612	1 614
Available capacity (MW)	2 361	2 169	2 69

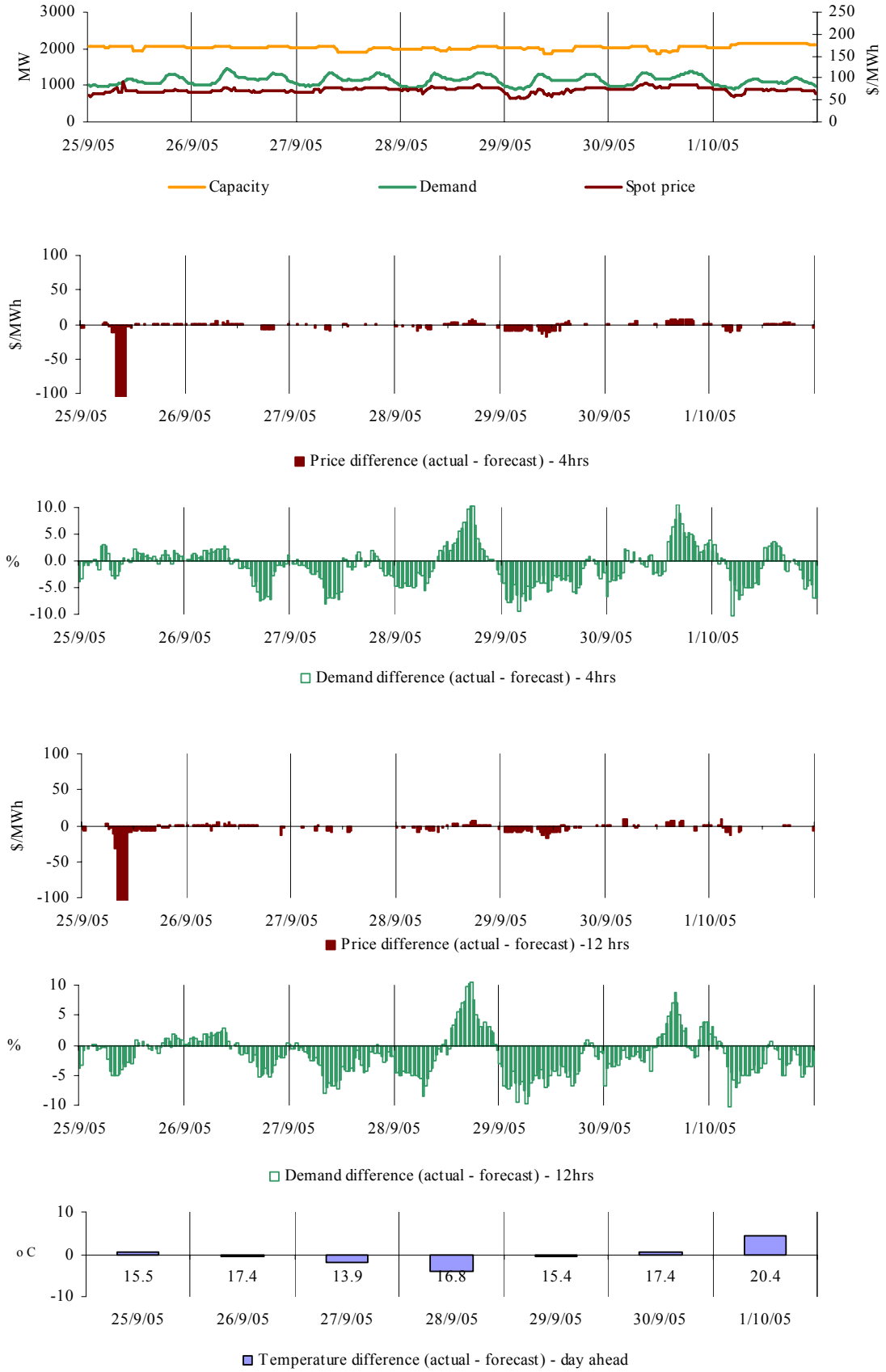
Conditions at the time saw combined demand across Victoria and South Australia close to forecast.

By 8.30am, Origin Energy had committed all four Quarantine units, rebidding a total of 92MW of capacity from prices around $9 000/MWh to zero. The rebid reason given was "Est (N) change in PDS".

At 8.16am, International Power rebid 170MW of capacity at Pelican Point from prices above $9 000/MWh to prices of less than zero. At the same time, 80MW of capacity priced at around $30/MWh was rebid to prices of $70/MWh and $96/MWh. The rebid reason given was "Change forecast of price".

There was no other significant rebidding.

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



There were no occasions in Tasmania where the spot price was greater than three times the weekly average price of $73/MWh.

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

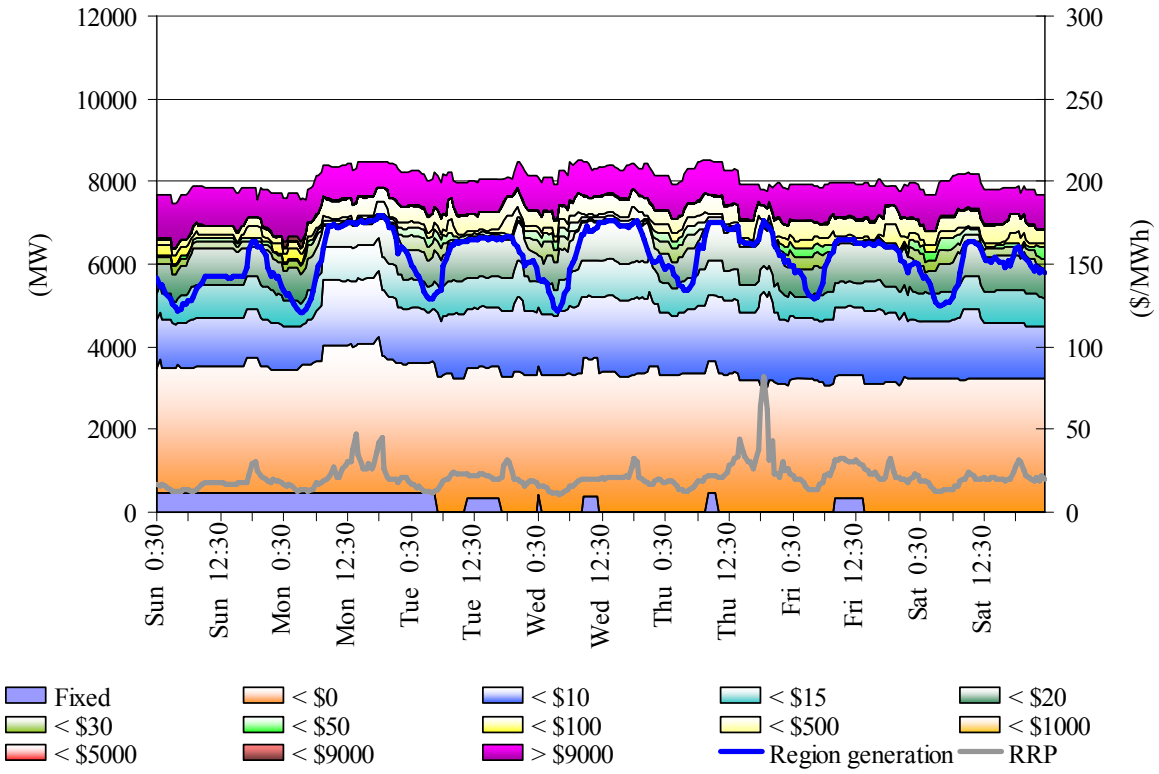


Figure 52: New South Wales closing bid prices, despatched generation and spot price

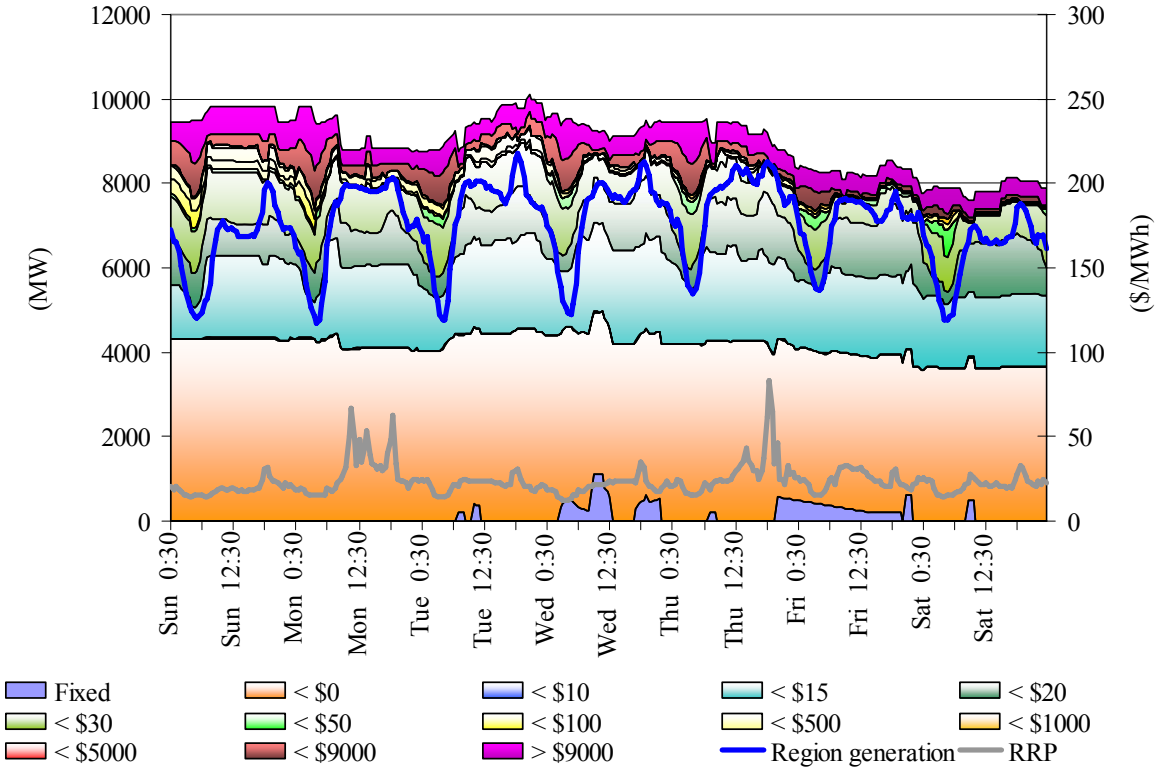


Figure 53: Victoria closing bid prices, despatched generation and spot price

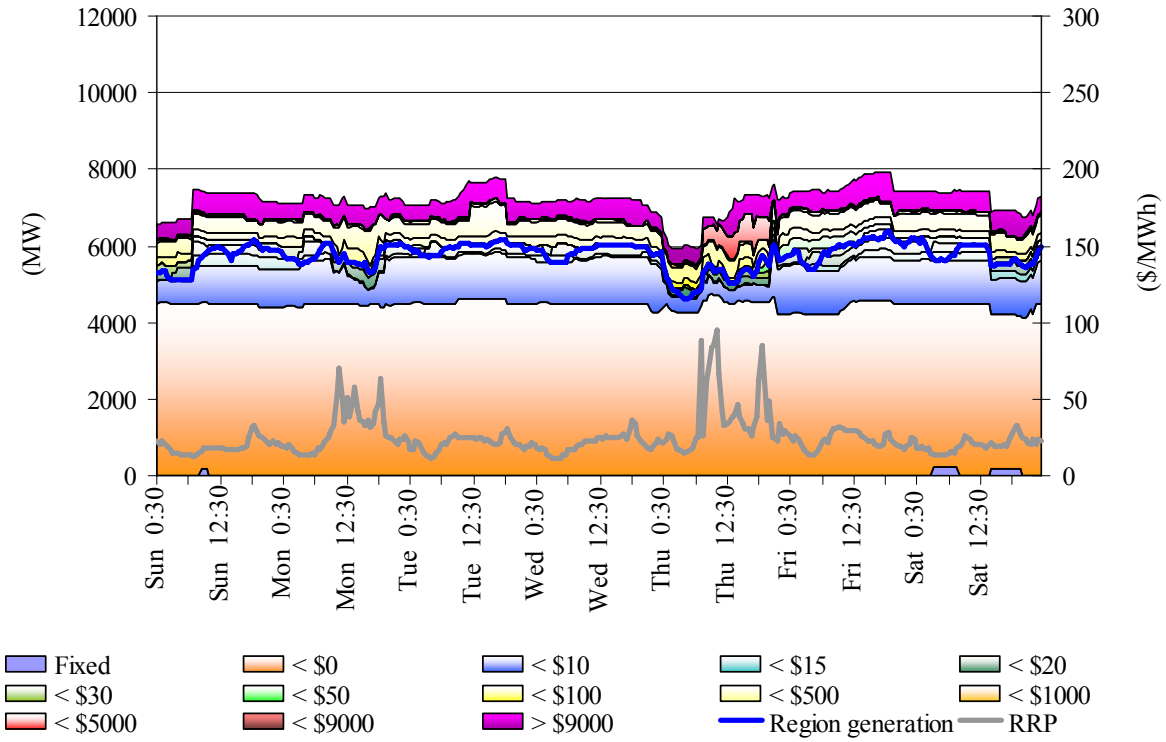


Figure 54: South Australia closing bid prices, despatched generation and spot price

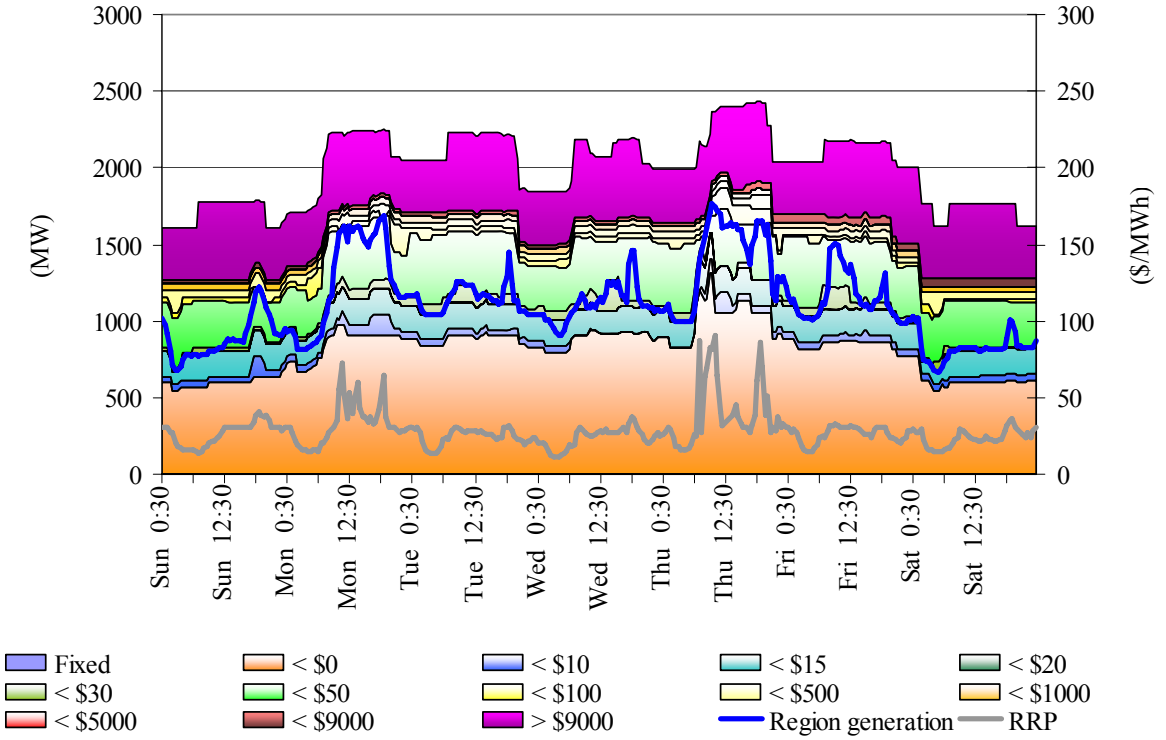
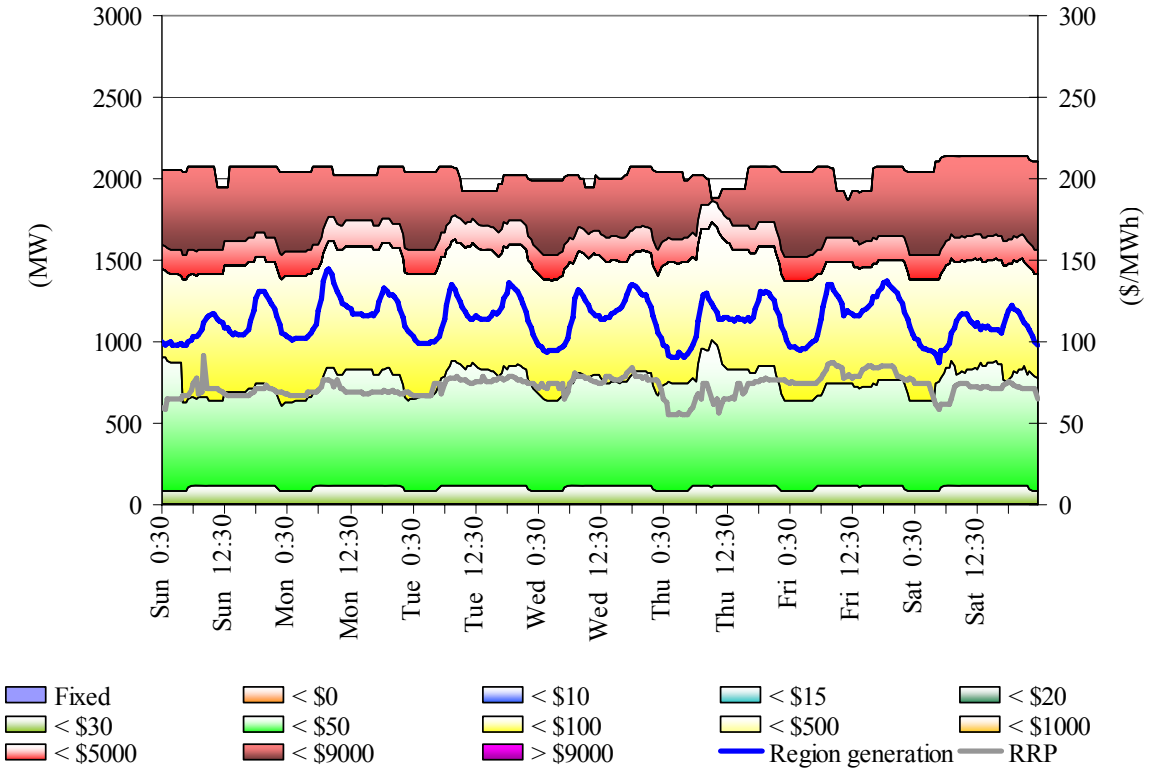


Figure 55: Tasmania closing bid prices, despatched generation and spot price



Ancillary service market

The total cost of ancillary services on the mainland for the week was $423 000 or 0.5 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: 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 ($)	2.39	1.43	1.33	1.55	0.25	0.36	1.52	1.57
Previous week($)	2.02	1.38	1.02	1.20	0.20	0.28	1.25	1.39
Last Quarter($)	1.43	0.69	0.98	1.36	0.16	0.12	1.16	1.58
Market Cost ($1000s)	$136	$81	$95	$34	$3	$4	$37	$34
% of energy market	0.16%	0.10%	0.11%	0.04%	0.00%	0.00%	0.04%	0.04%

In Tasmania, ancillary service costs totalled $138 000 or one per cent of turnover. At times on Tuesday, despatch for raise and lower regulation was zero as a result of a failure of the SCADA system. The price for these services reached $10 000/MWh at the time. This had no impact on the cost of these services for the week.

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 ($)	2.73	1.05	1.06	1.08	1.10	1.06	1.07	1.07
Previous week($)	2.45	1.05	1.05	1.07	1.66	1.05	1.05	1.08
Market Cost ($1000s)	$26	$10	$11	$9	$14	$32	$27	$9
% of energy market	0.19%	0.07%	0.08%	0.07%	0.10%	0.23%	0.19%	0.07%

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

Figure 58: daily frequency control ancillary service costs

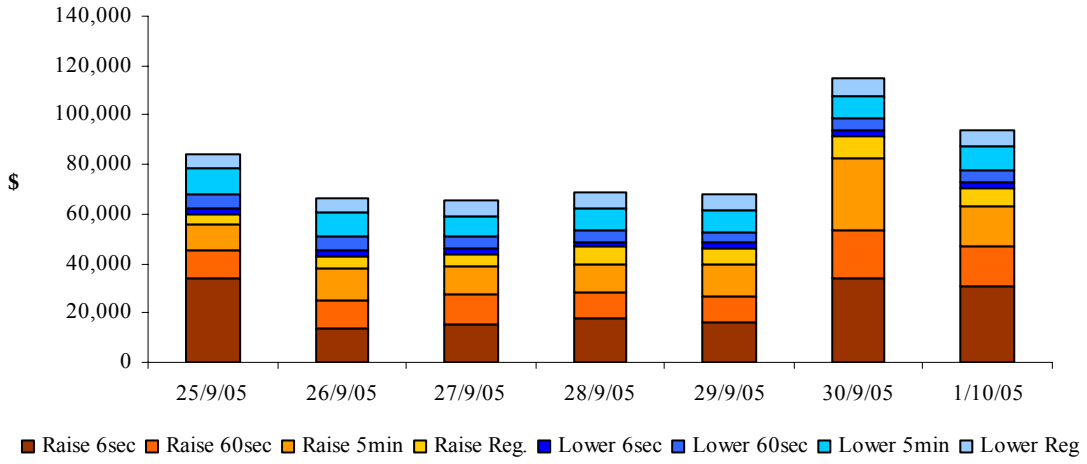
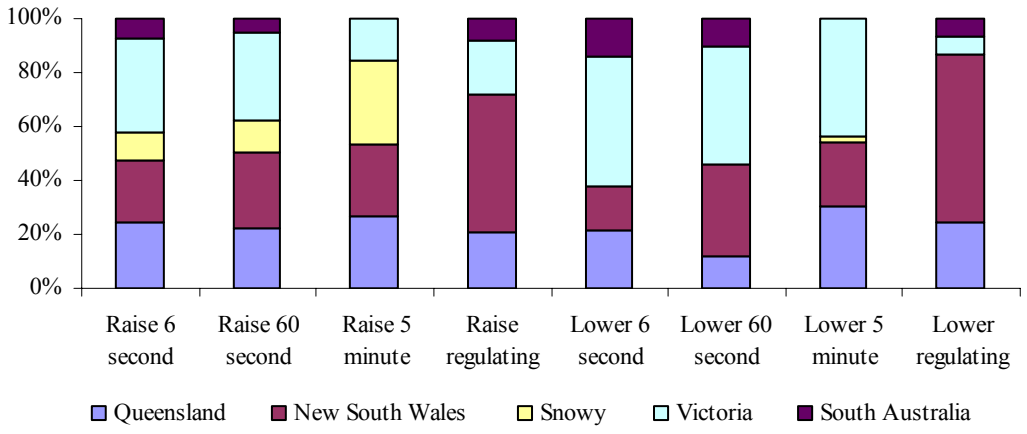


Figure 59 shows the regional weekly participation in each of the ancillary service markets on the mainland.

Figure 59: regional participation in ancillary services on the mainland



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

Figure 60: prices for raise services

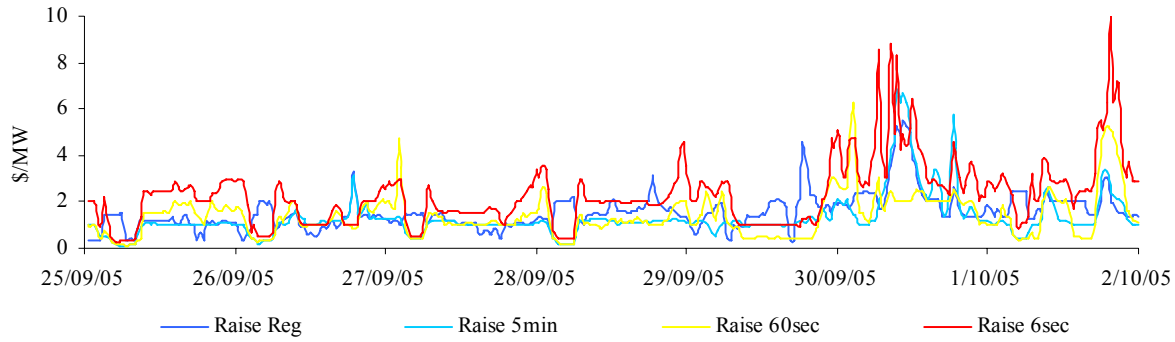


Figure 60A: prices for raise services - Tasmania

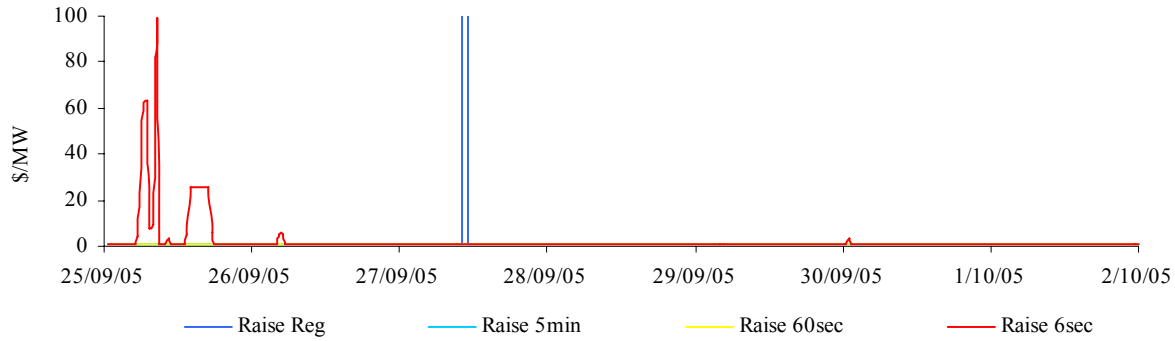


Figure 61: prices for lower services

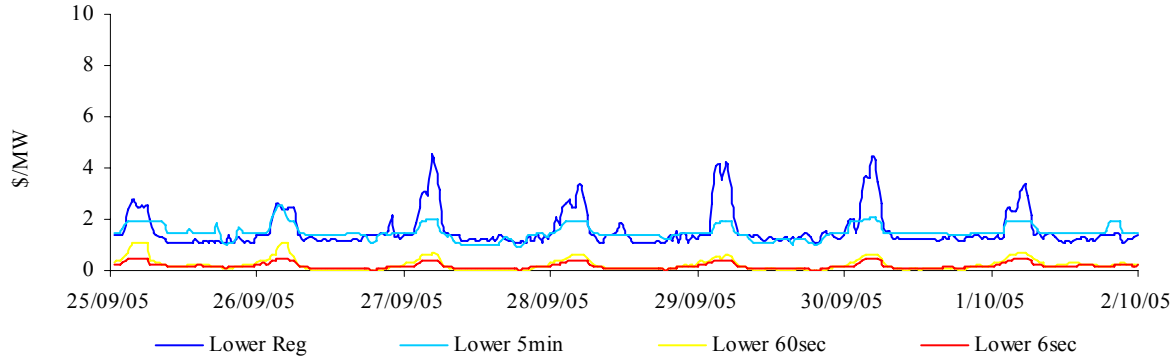
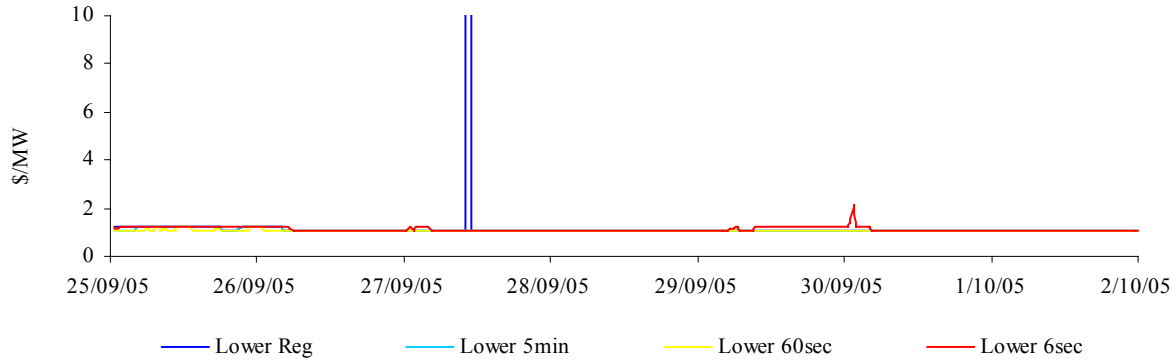


Figure 61A: prices for lower services - Tasmania



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

Figure 62: raise requirements

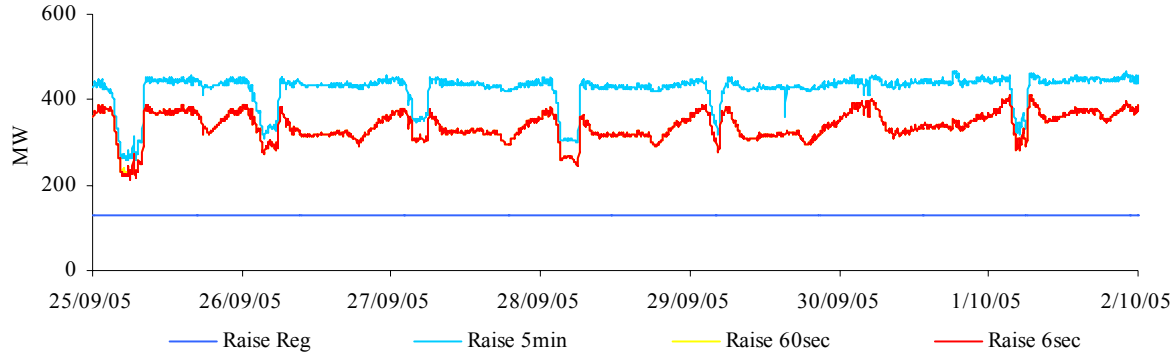


Figure 62A: raise requirements - Tasmania

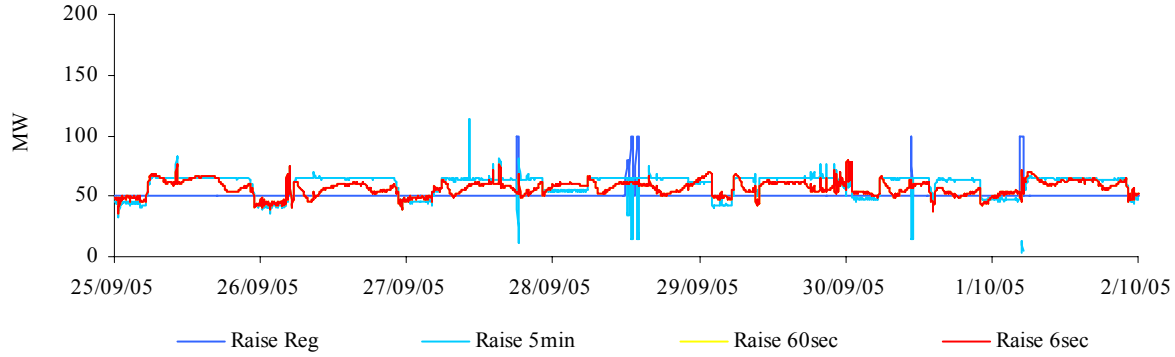


Figure 63: lower requirements

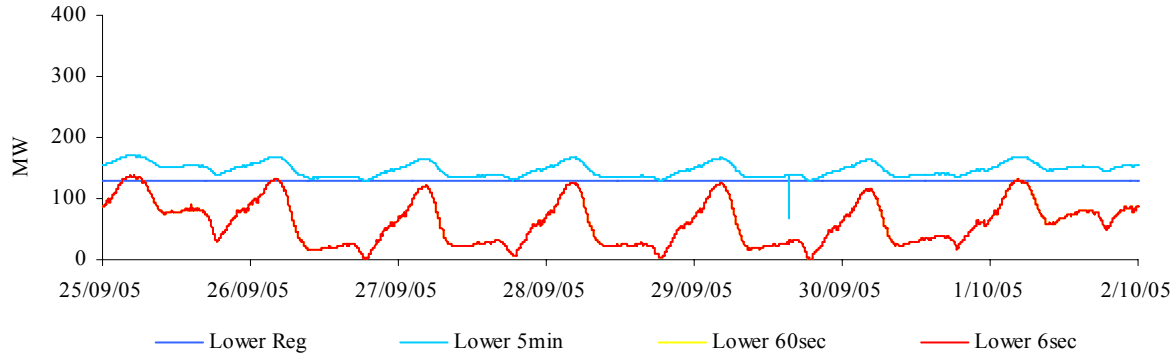
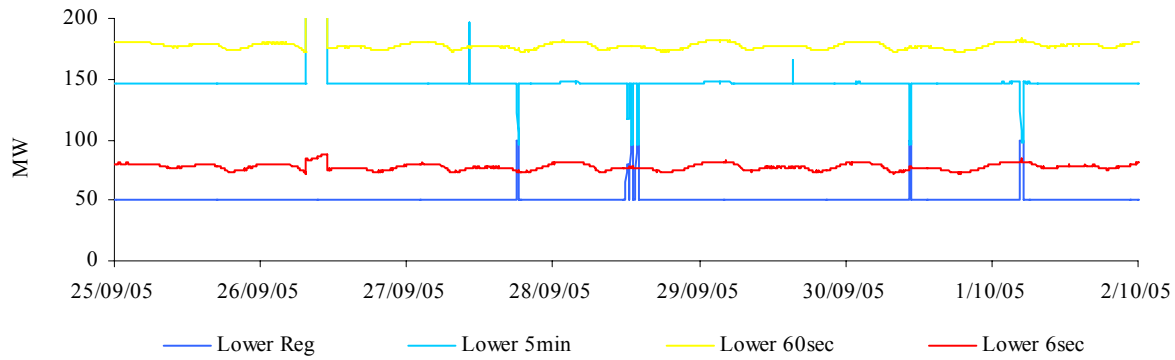


Figure 63A: lower requirements - Tasmania



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