Market analysis

AUSTRALIAN ENERGY REGULATOR

18 – 24 SEPTEMBER 2005

Spot prices across the mainland for the week ranged from $21/MWh in Queensland to $30/MWh in South Australia. These prices represented a decrease of around a third compared to the previous week. A reduction in peak demand of around five per cent in New South Wales, Victoria and South Australia contributed to this decrease.

In Tasmania, spot prices averaged $63/MWh, consistent with the previous week.

Turnover in the energy market for the mainland was $89 million, with a total cost of ancillary services for the week of around $360,000 or 0.4 per cent of turnover. In Tasmania turnover in the energy market was $12 million, with ancillary services totaling $140,000 or one per cent of turnover. This represented the lowest cost for ancillary services in Tasmania since the end of July.

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. In South Australia and Tasmania demand errors occurred in around two thirds and one third of all trading intervals respectively, on the same basis. Significant variations between forecast and actual prices occurred in 25 or seven 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 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	21	26	26	30	63
Previous week	33	43	43	43	63
Same quarter last year	27	31	28	36	-
Financial year to date	22	29	30	34	101
% change from previous week	▼37%	▼38%	▼39%	▼32%	0%
% change from same quarter last year	▼22%	▼16%	▼6%	▼19%	-
% change from last financial year	▼18%	▼10%	▲5%	▼8%	-

Figure 2: national demand and spot prices

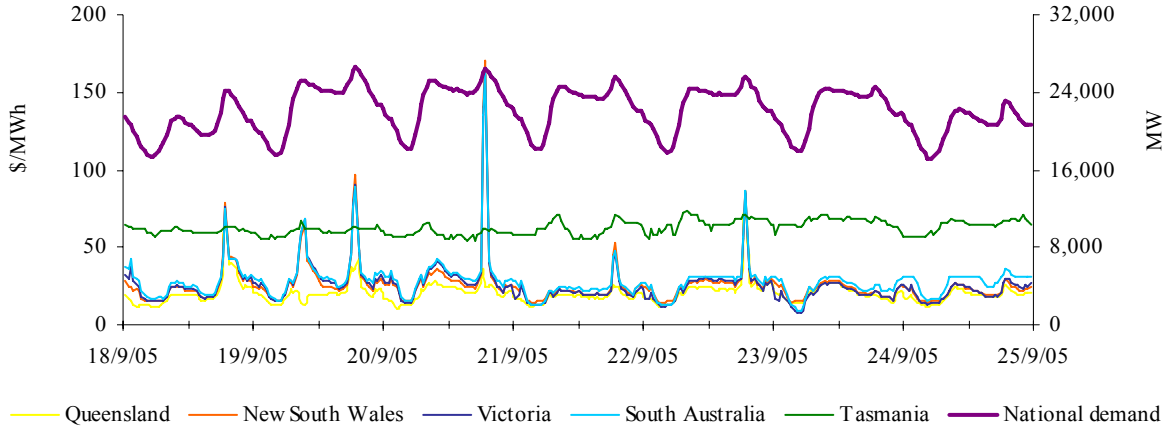


Figure 3: volatility index during peak periods

	QLD	NSW	VIC	SA	TAS
Last week	0.37	0.54	0.66	0.52	0.18
Previous week	1.12	1.65	1.39	1.19	0.17
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

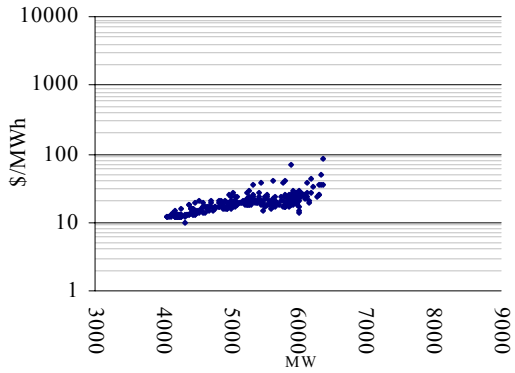


Figure 5: New South Wales

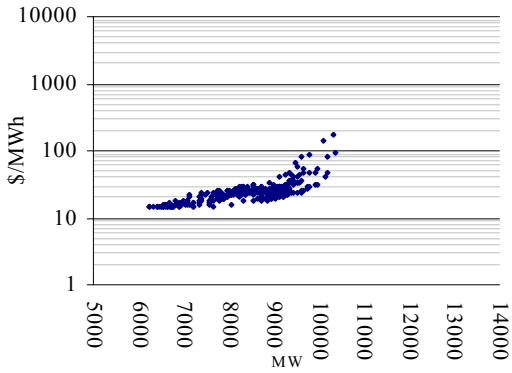


Figure 6: Victoria

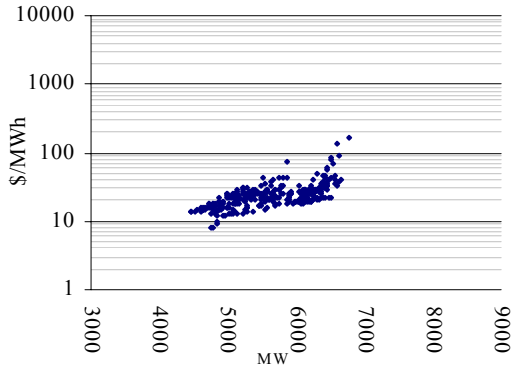


Figure 7: South Australia

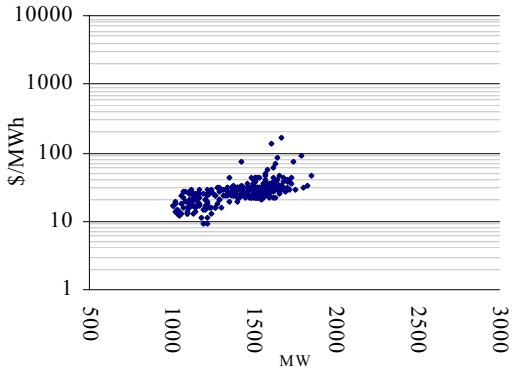
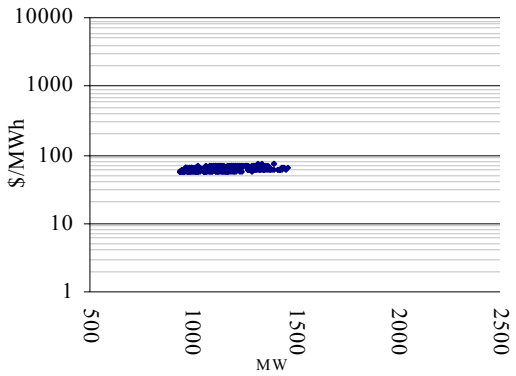


Figure 8: Tasmania



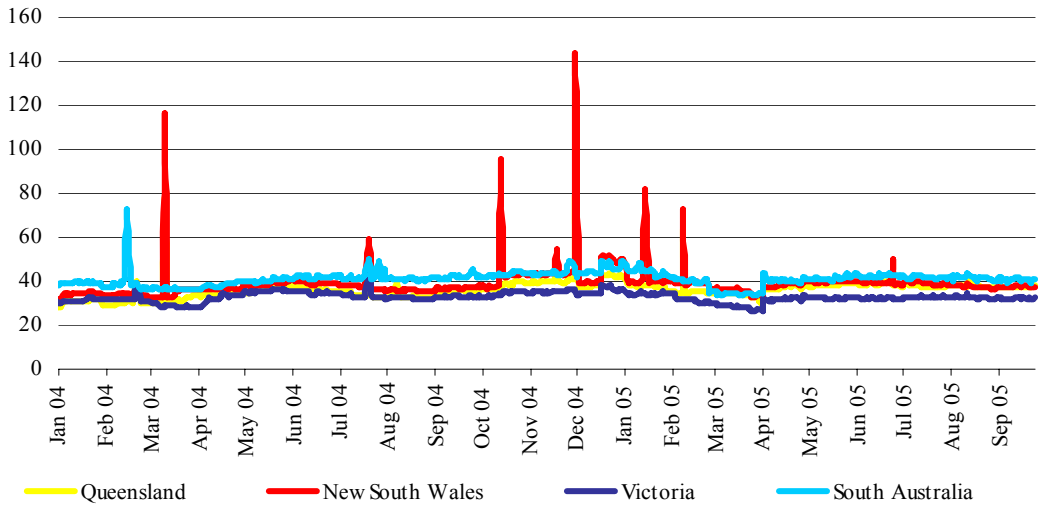
The maximum spot prices for the week were around $170/MWh in New South Wales, Victoria and South Australia, all occurring at 7pm on Tuesday. In Queensland, the maximum spot price for the week of $82/MWh occurred on Thursday evening. In Tasmania, the spot price reached $74/MWh on Thursday morning.

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	37.41	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

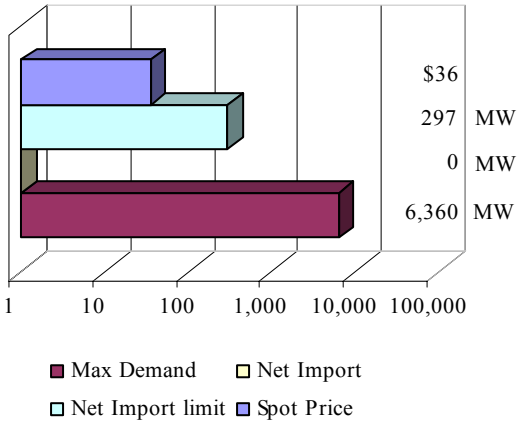


Figure 12: New South Wales

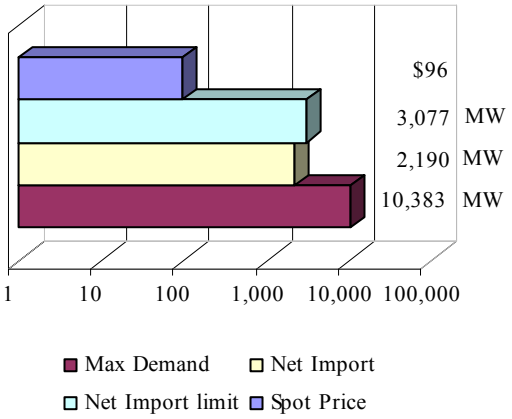


Figure 13: Victoria

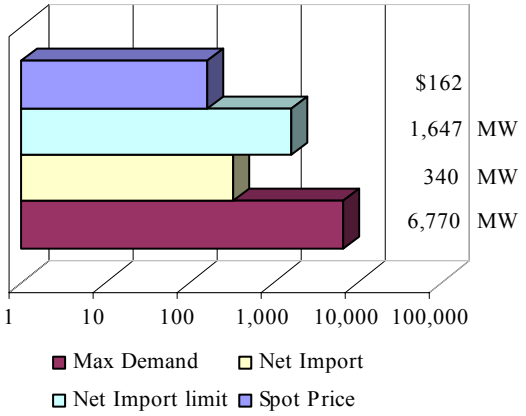
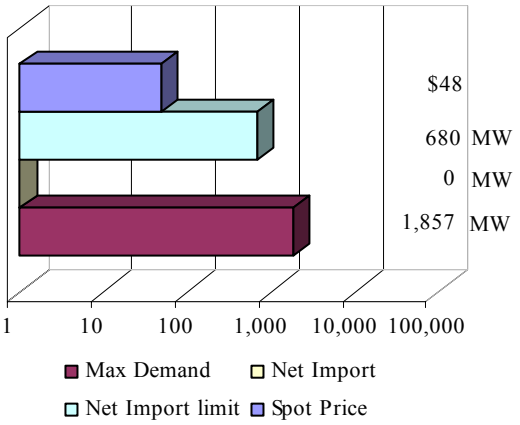


Figure 14: South Australia



In Tasmania, the demand reached a maximum of 1,465MW at 7pm on Monday. The spot price at the time was $63/MWh.

Price variations

There were 25 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

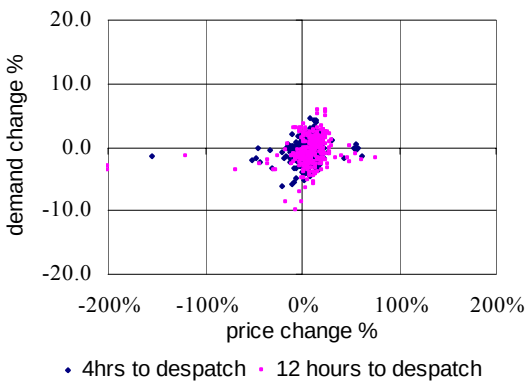


Figure 16: New South Wales

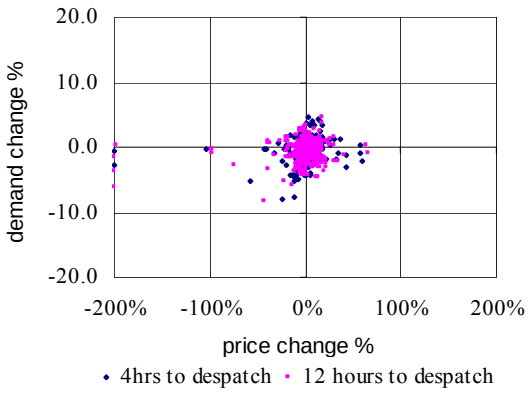


Figure 17: Victoria

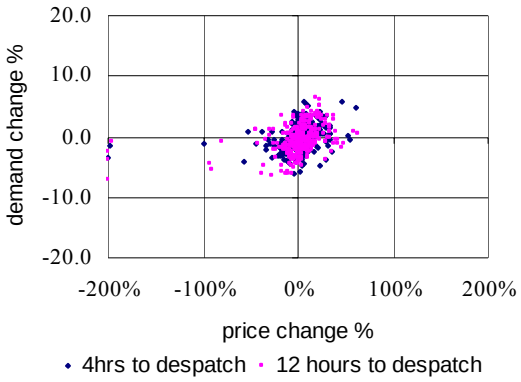


Figure 18: South Australia

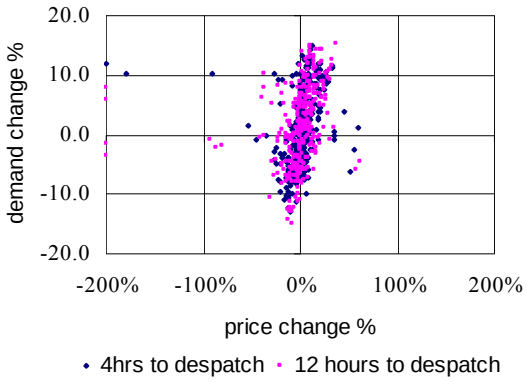


Figure 19: Tasmania

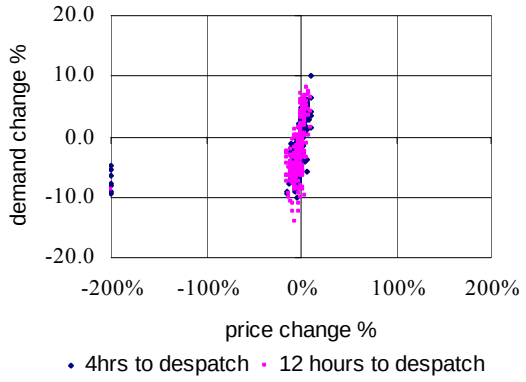
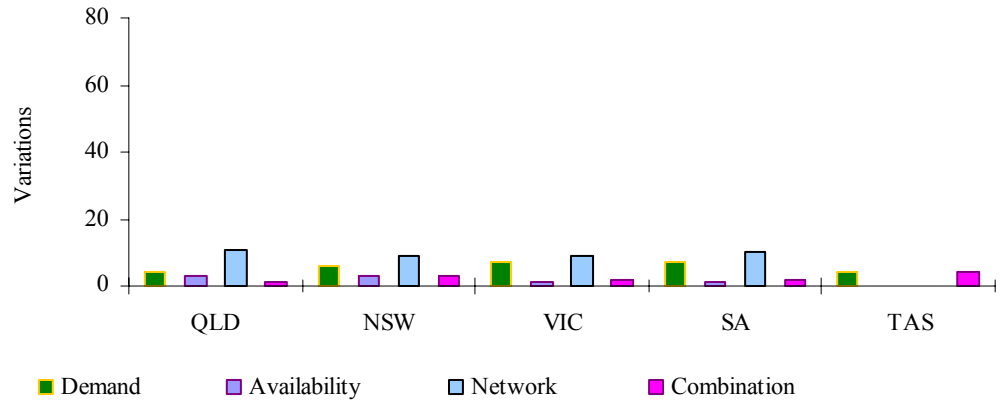


Figure 20 summarises the number and most probable reason for variations between forecast and actual prices.

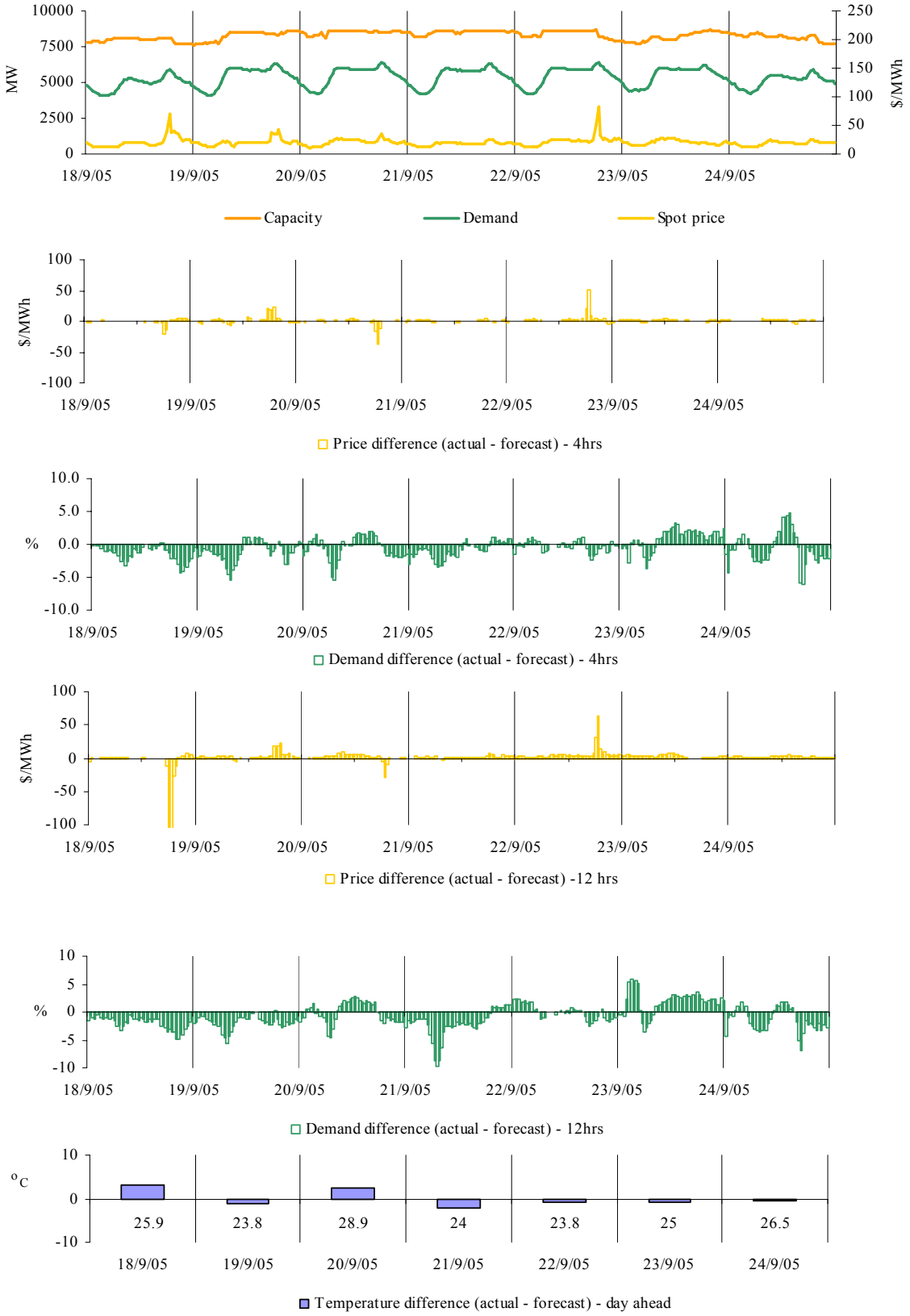
Figure 20: reasons for variations between forecast and actual prices



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 two occasions in Queensland where the spot price was greater than three times the weekly average price of $21/MWh. These occurred at 7pm on Sunday and Thursday.

Sunday, 18 September

7:00 pm	Actual	4 hr forecast	12 hr forecast
Price ($/MWh)	70.04	83.40	252.41
Demand (MW)	5,899	6,007	6,079
Available capacity (MW)	8,108	8,115	8,115

Conditions at the time saw demand and price lower than forecast, with prices aligned across the mainland.

At 6.45pm, Tarong Energy rebid 185MW of capacity at Wivenhoe from prices of $62/MWh to $99/MWh. The rebid reason given was "Latest PRD::Avoid uneconomic dispatch & cycling".

There was no other significant rebidding.

Thursday, 22 September

7:00 pm	Actual	4 hr forecast	12 hr forecast
Price ($/MWh)	82.08	30.59	19.25
Demand (MW)	6,358	6,451	6,461
Available capacity (MW)	8,212	8,628	8,628

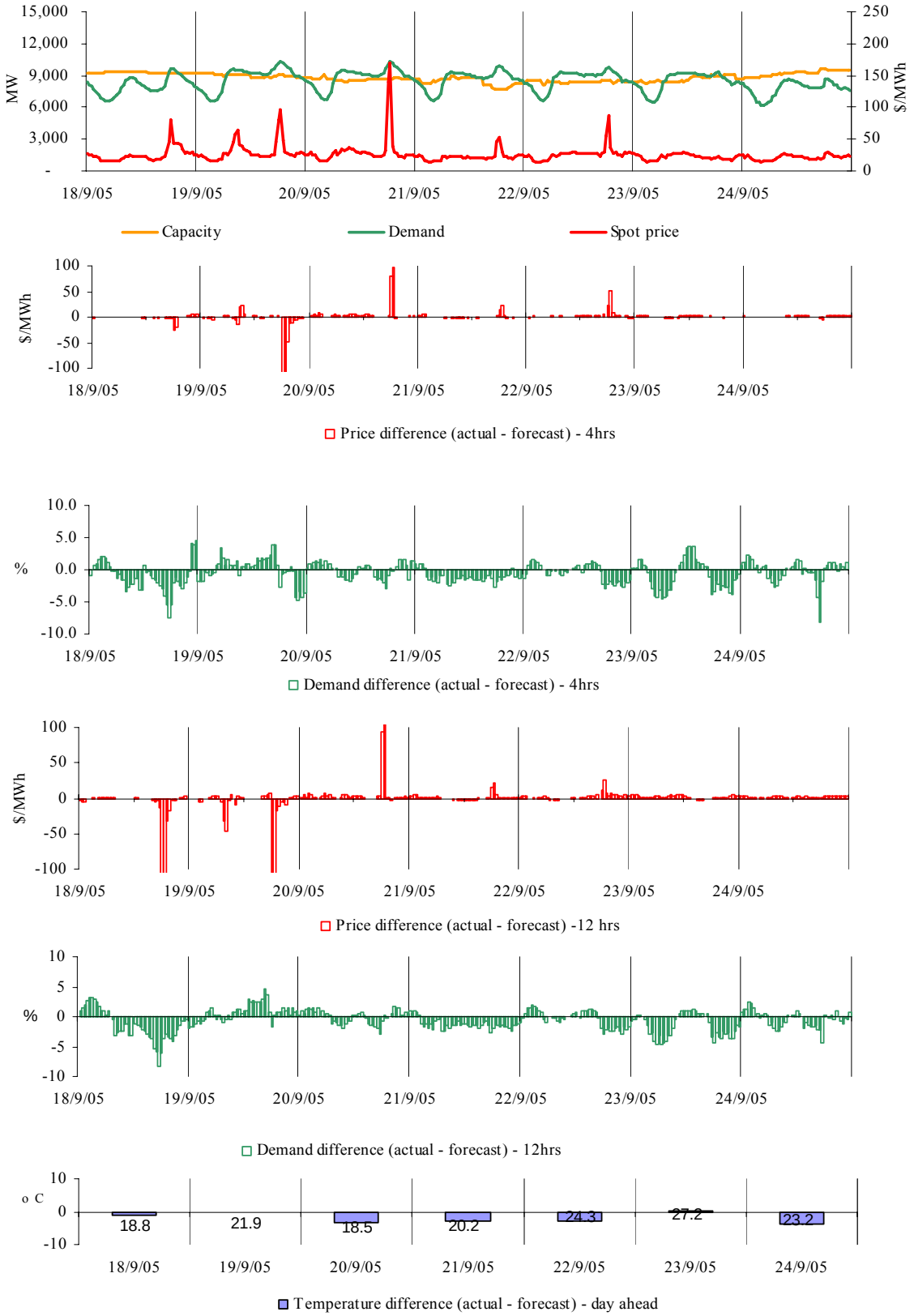
Conditions at the time saw demand close to forecast. Prices were aligned across the mainland throughout this period and were higher than forecast. Available capacity within Queensland was around 400MW lower than forecast four hours earlier. At 6.27pm, Millmerran unit 1 tripped from 435MW. All of this capacity was priced at less than zero. The rebid reason given was "Unit trip".

Over two rebids at 3.27pm and 5.31pm, Stanwell rebid 220MW of capacity at Stanwell unit 2 from prices of less than $20/MWh to prices around $6,000/MWh. The rebid reasons given were "Ash and dust plant limits" and "Revised plant limits". A rebid on Stanwell unit 4 at 5.41pm, moved 10MW from prices of around $6,000/MWh to $10/MWh. The rebid reason given was Compensate for unit 2".

Tarong Energy rebid 185MW of capacity at 6.50pm, from prices of $100/MWh to $33/MWh at Wivenhoe unit 2 committing the unit. The rebid reason given was "F Change in PD:: adjust profile".

There was no other significant rebidding.

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



There were five occasions in New South Wales where the spot price was greater than three times the weekly average price of $26/MWh. These occurred over the evening peaks on Monday, Tuesday and Thursday.

Monday, 19 September

6:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	80.11	306.09	290.98
Demand (MW)	10,191	10,472	10,356
Available capacity (MW)	9,034	9,049	9,247
7:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	96.28	306.00	286.22
Demand (MW)	10,383	10,449	10,352
Available capacity (MW)	9,034	9,049	9,247

Conditions at the time saw demand lower than forecast four hours ahead of dispatch. Prices were aligned across the southern mainland regions throughout this period and lower than forecast. Flows into New South Wales from Queensland across QNI were limited by a planned transformer outage at Armidale in New South Wales. Actual interconnector capability and resulting flows were, however, around 700MW higher than forecast four hours earlier.

From midday, Delta Electricity reduced the amount of capacity offered at prices of less than $30/MWh, by a total of 140MW. This included an 80MW reduction in the availability of Vales Point unit 5. The rebid reasons given were “Emission limit:: capacity limit”, “Emission limit:: capacity limit change” and “F $ > Forecast:: Band shift”.

Macquarie Generation reduced the availability at Liddell by 135MW from 3pm. Most of this capacity had been priced at less than $20/MWh. The rebid reason given was “HP Heater limit” and “Milling limit”.

There was no other significant rebidding.

Tuesday, 20 September

6:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	140.86	60.00	47.21
Demand (MW)	10,112	10,200	10,197
Available capacity (MW)	8,673	8,850	9,219
7:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	170.16	72.76	62.00
Demand (MW)	10,315	10,298	10,294
Available capacity (MW)	8,645	8,825	9,220

Conditions at the time saw demand close to forecast. Prices were aligned across the southern mainland regions and higher than forecast. The planned outage of the a transformer in Armidale in New South Wales, forecast to be completed by 6pm, was extended at 5.30pm by two days. As a result flows into New South Wales across QNI were as much as 500MW lower than forecast.

At 6.20pm and 6.25pm, Delta Electricity reduced the availability of Vales Point unit 5 by a total of 90MW. All of this capacity was priced at less than $20/MWh. The rebid reason given was “Dust emission:: Capacity limit change”.

There was no other significant rebidding.

Thursday, 22 September

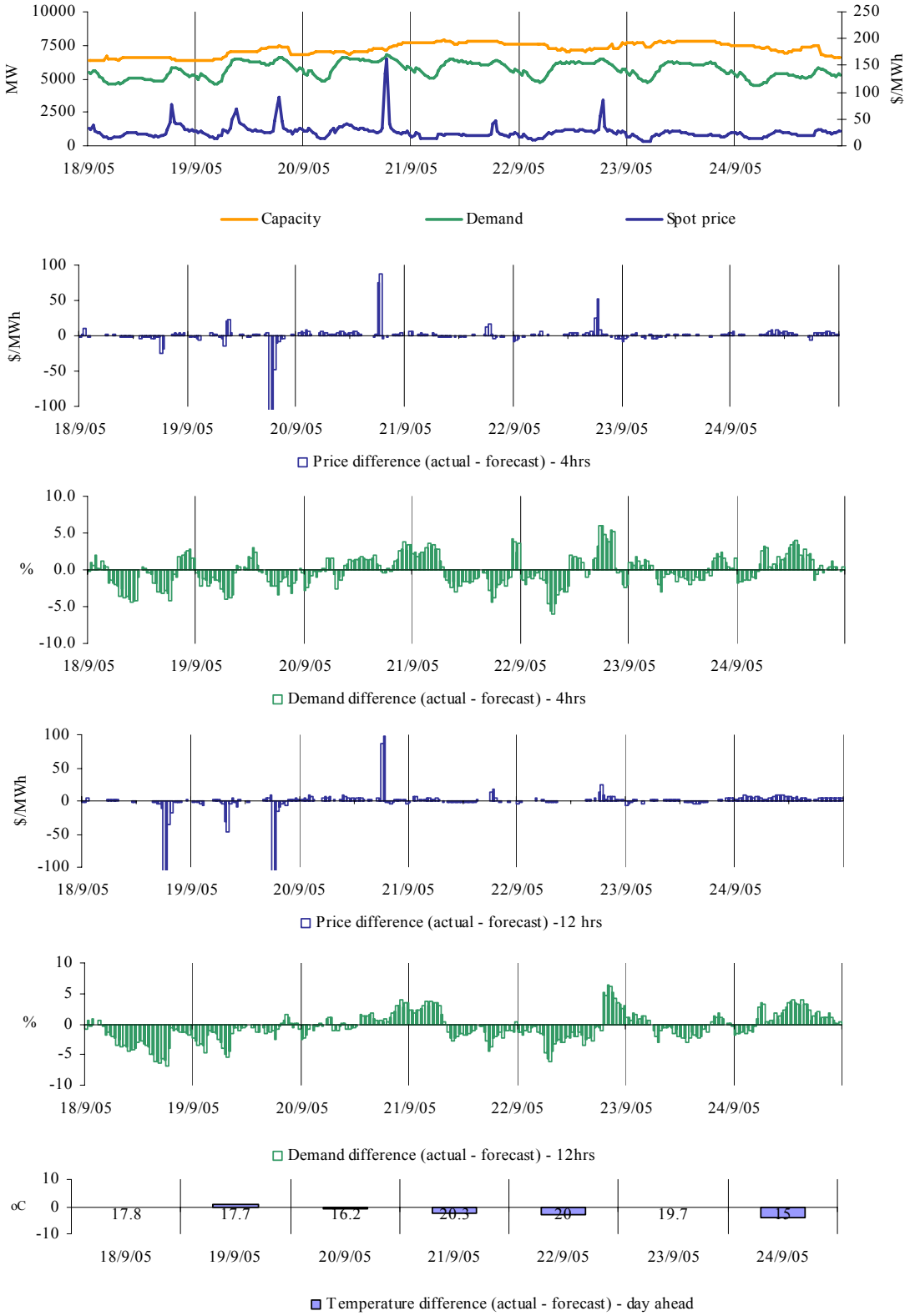
7:00 pm	Actual	4 hr forecast	12 hr forecast
Price ($/MWh)	86.24	34.35	60.00
Demand (MW)	9,774	9,993	9,992
Available capacity (MW)	8,560	8,650	9,040

Conditions at the time saw demand around 200MW lower than forecast. Prices were aligned across the mainland throughout this period and were higher than forecast.

Delta Electricity reduced the availability across Vales Point and Wallerawang by a total of 520MW over the course of the day. These reductions included delays in the return to service of Wallerawang unit 8, which saw 200MW of capacity priced at less than zero not available over the evening peak. The rebid reasons given were "RTS delayed:: capacity change". The availability of Vales Point unit 5 was reduced by 320MW. Most of this capacity was priced at less than $30/MWh. The rebid reasons given were "Dust burden:: capacity limit".

There was no other significant rebidding.

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



There were four occasions in Victoria where the spot price was greater than three times the weekly average price of $26/MWh. These occurred over the evening peaks on Monday, Tuesday and Thursday.

Monday, 19 September

7:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	90.77	269.57	268.08
Demand (MW)	6,637	6,740	6,694
Available capacity (MW)	7,428	7,588	7,685

Conditions at the time saw demand close to forecast. Prices were lower than forecast and aligned across the southern mainland regions throughout this period. Flows into New South Wales from Queensland, were around 700MW higher than the four hour ahead forecast, contributing to the lower than forecast price.

Around midday, Alinta rebid 90MW of capacity at Bairnsdale from prices above $9,000/MWh to prices below $40/MWh for the evening peak, committing two units. The rebid reason given was "Market conditions – price/demand expectation".

Delays to the return to service of Hazelwood unit 1 saw a total reduction in availability of around 200MW. Almost all of this capacity was priced at less than $10/MWh. The rebid reasons given were "Revised synchronisation time". At 6.40pm, further rebids by International Power saw around 115MW of capacity at Valley Power moved from prices around $400/MWh to zero, which committed three units. The rebid reason given was "Change in actual prices".

At 5.56pm, Ecogen rebid 100MW of capacity at Newport from prices above $9,000/MWh to prices below $40/MWh. The rebid reason given was "Adj to unit commitment due to limits on other plant".

At 5.58pm, AGL rebid 35MW of capacity at Somerton from prices above $9,000/MWh to zero, committing a unit. The rebid reason given was "Predispatch: forecast price increase:: price".

There was no other significant rebidding.

Tuesday, 20 September

6:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	135.06	59.81	48.38
Demand (MW)	6,599	6,627	6,576
Available capacity (MW)	7,142	7,300	7,350
7:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	161.54	75.04	64.68
Demand (MW)	6,770	6,763	6,708
Available capacity (MW)	7,155	7,300	7,355

Conditions at the time saw demand close to forecast. Prices were higher than forecast and aligned across the southern mainland regions throughout this period. Flows, into New South Wales from Queensland, were as much as 500MW lower than the four hour ahead forecast.

From 6pm, International Power, rebid 168MW of capacity at Valley Power from prices around $400/MWh and 62MW from around $90/MWh to zero, committing five units. The rebid reason given was "Change in actual prices". Reductions in availability at Hazelwood unit 5 from 3pm, removed up to 50MW of capacity from prices of less than $20/MWh. The

rebid reasons given were “revised rate of run-up capacity”, “fuel limitation” and “Firing plant limit”.

There was no other significant rebidding.

Thursday, 22 September

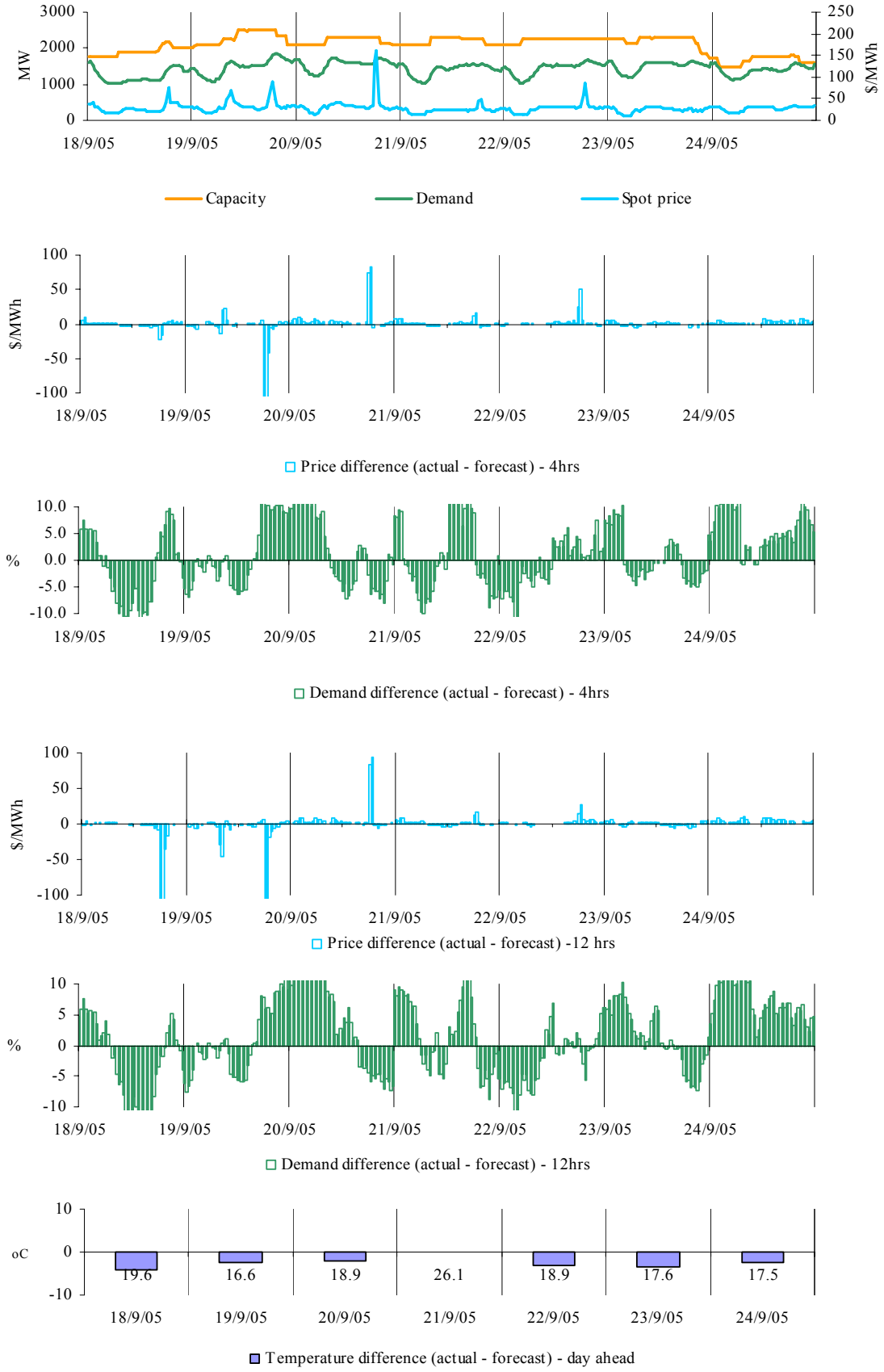
7:00 pm	Actual	4 hr forecast	12 hr forecast
Price ($/MWh)	84.80	33.54	59.71
Demand (MW)	6,511	6,199	6,574
Available capacity (MW)	7,222	7,264	7,311

Conditions at the time saw demand around 300MW higher than to forecast. Prices were aligned across the mainland throughout this period and higher than forecast.

At 6.03pm, Alinta rebid 90MW of capacity at Bairnsdale from prices above $9,000/MWh to prices around $35/MWh, committing two units. The rebid reason given was “Market conditions – Price/demand expectation”.

There was no other significant rebidding.

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



There were three occasions in South Australia where the spot price was greater than three times the weekly average price of $30/MWh. These occurred over the evening peaks on Monday and Tuesday.

Monday, 19 September

7:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	88.83	248.45	272.11
Demand (MW)	1,796	1,609	1,688
Available capacity (MW)	2,516	2,523	2,257

Conditions at the time saw demand around 200MW higher than forecast. Prices were lower than forecast and aligned across the southern mainland regions throughout this period. Flows into New South Wales from Queensland, were around 700MW higher than the four hour ahead forecast, contributing to the lower than forecast price.

By 4.12pm, Origin Energy rebid all of the capacity at Quarantine, around 90MW, to zero prices, committing all four units. This capacity had been priced at $9,000/MWh previously. The rebid reasons given were "Est (N) change in PDS" and "Est (n) Change in PDS and handover bid".

At 5.20pm, NRG Flinders reduced the availability of Playford by 45MW. All of this capacity was priced at less than zero. The rebid reason given was "Adj Playford loading schedule lost a boiler". Some of this capacity was returned during the trading interval. The rebid reasons given were "Match bid to unit output Playford".

At 5.45pm, International Power rebid as much as 40MW of capacity at Pelican Point from prices of less than $100/MWh to prices above $9,000/MWh. The rebid reason given was "Change in price forecast"

AGL rebid 20MW of capacity at Hallet power station at 5.59pm from prices of more than $9,000/MWh to zero, committing a unit. The rebid reason given was "Predispatch: forecast price increase:: price".

There was no other significant rebidding.

Tuesday, 20 September

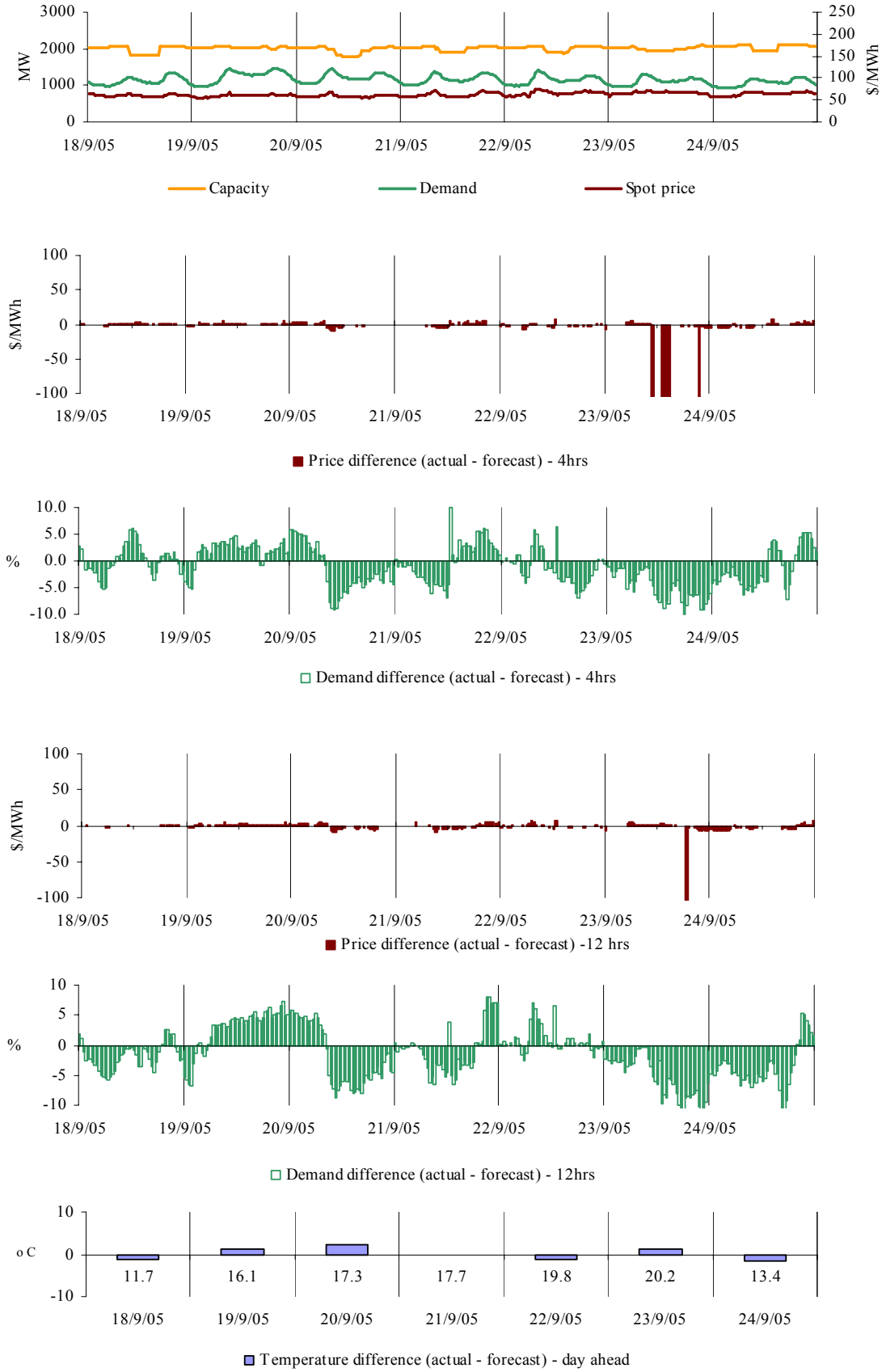
6:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	135.35	60.10	51.01
Demand (MW)	1,606	1,649	1,677
Available capacity (MW)	2,308	2,308	2,308
7:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	161.96	78.53	67.33
Demand (MW)	1,670	1,777	1,768
Available capacity (MW)	2,311	2,308	2,308

Conditions at the time saw demand lower than forecast. Prices were aligned across the southern mainland regions throughout this period and were higher than forecast. Flows into New South Wales from Queensland, were as much as 500MW lower than the four hour ahead forecast.

AGL rebid 30MW of capacity at Hallet power station at 6.40pm. The rebid moved this capacity from prices above $9,000/MWh to zero and committed a unit. The rebid reason given was "Predispatch: forecast price increase::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 $63/MWh.

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

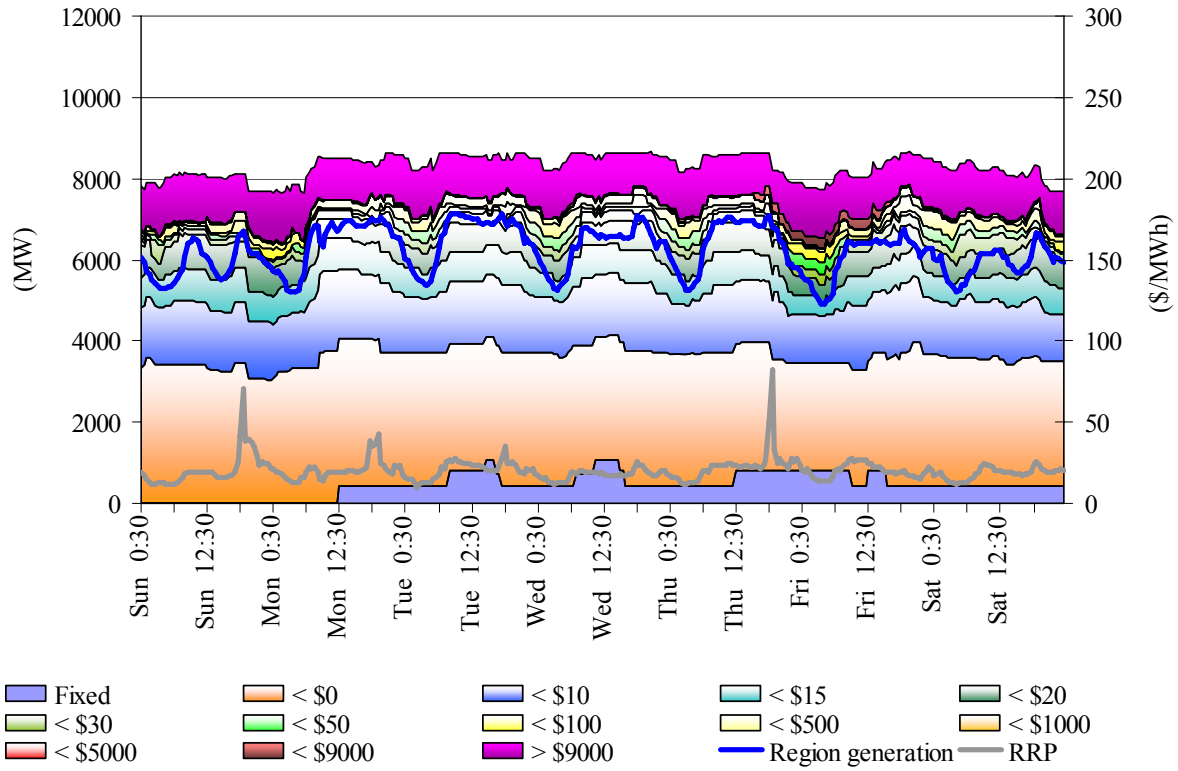


Figure 52: New South Wales closing bid prices, despatched generation and spot price

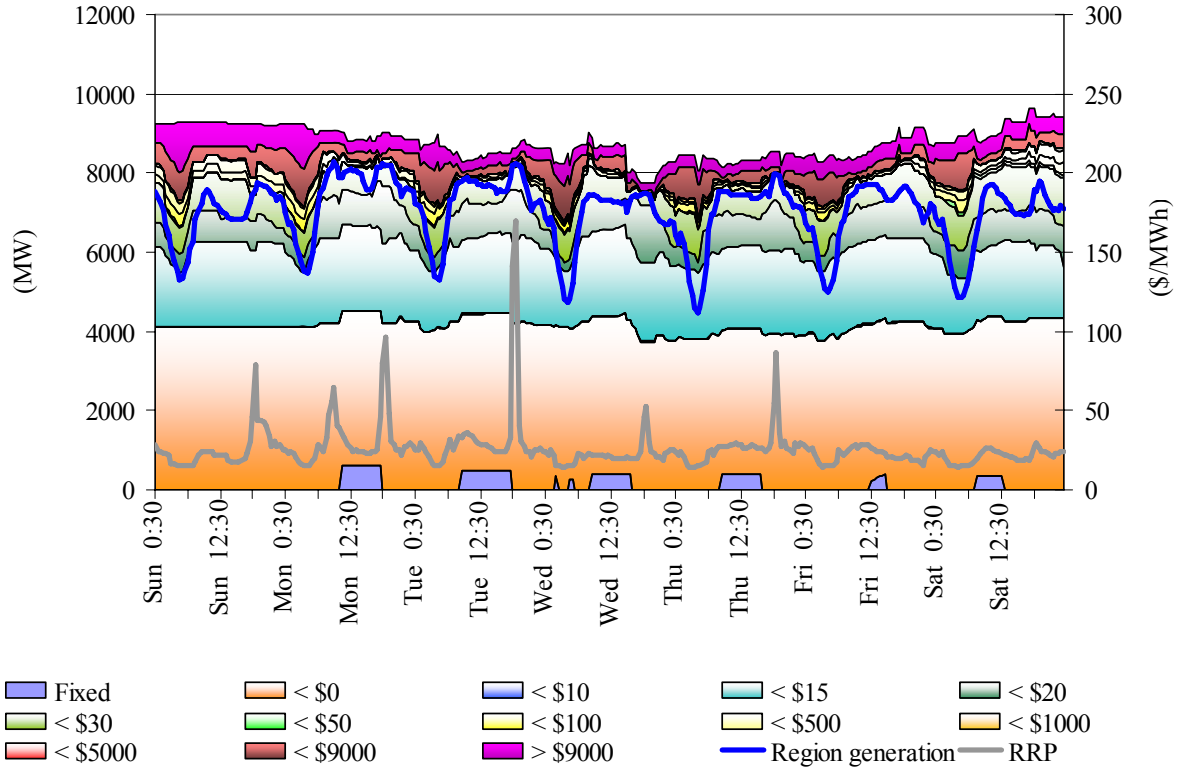


Figure 53: Victoria closing bid prices, despatched generation and spot price

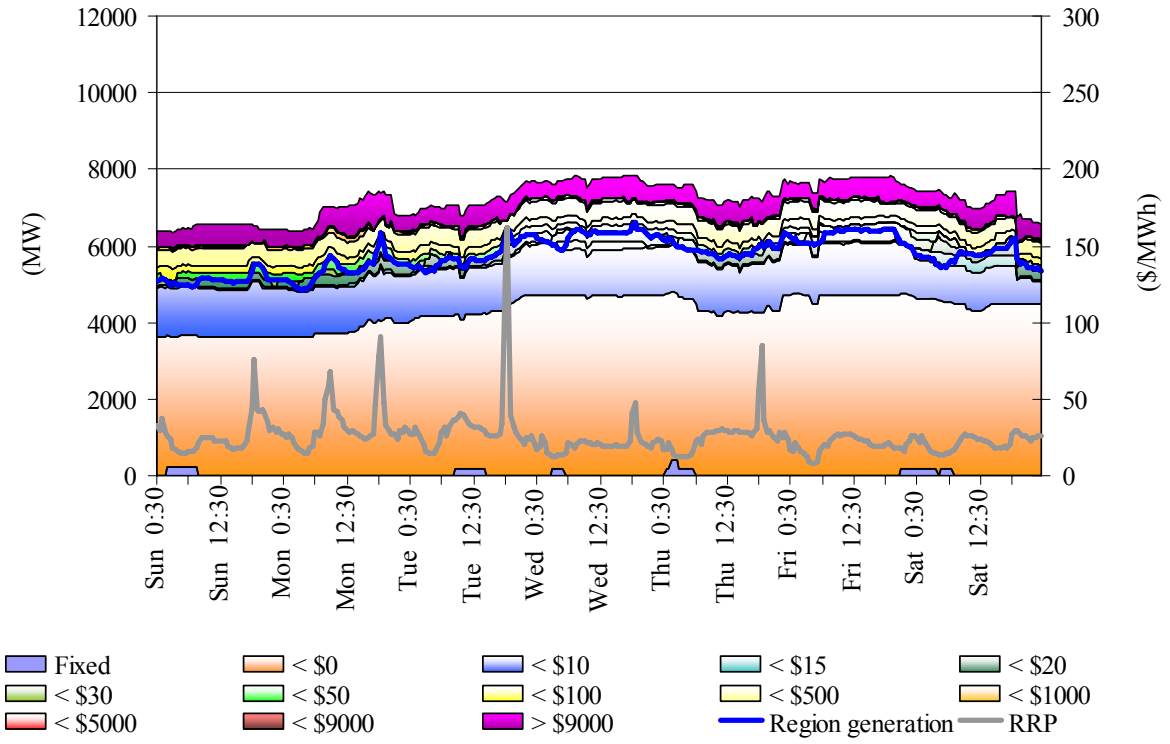


Figure 54: South Australia closing bid prices, despatched generation and spot price

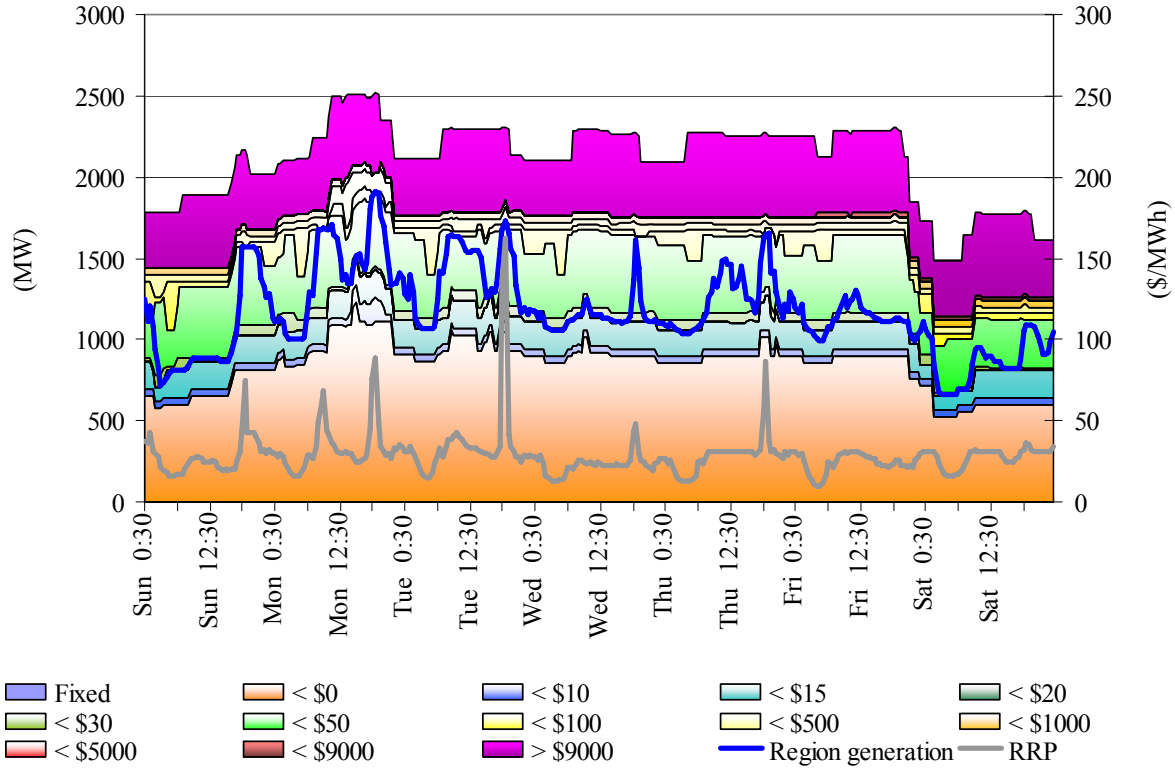
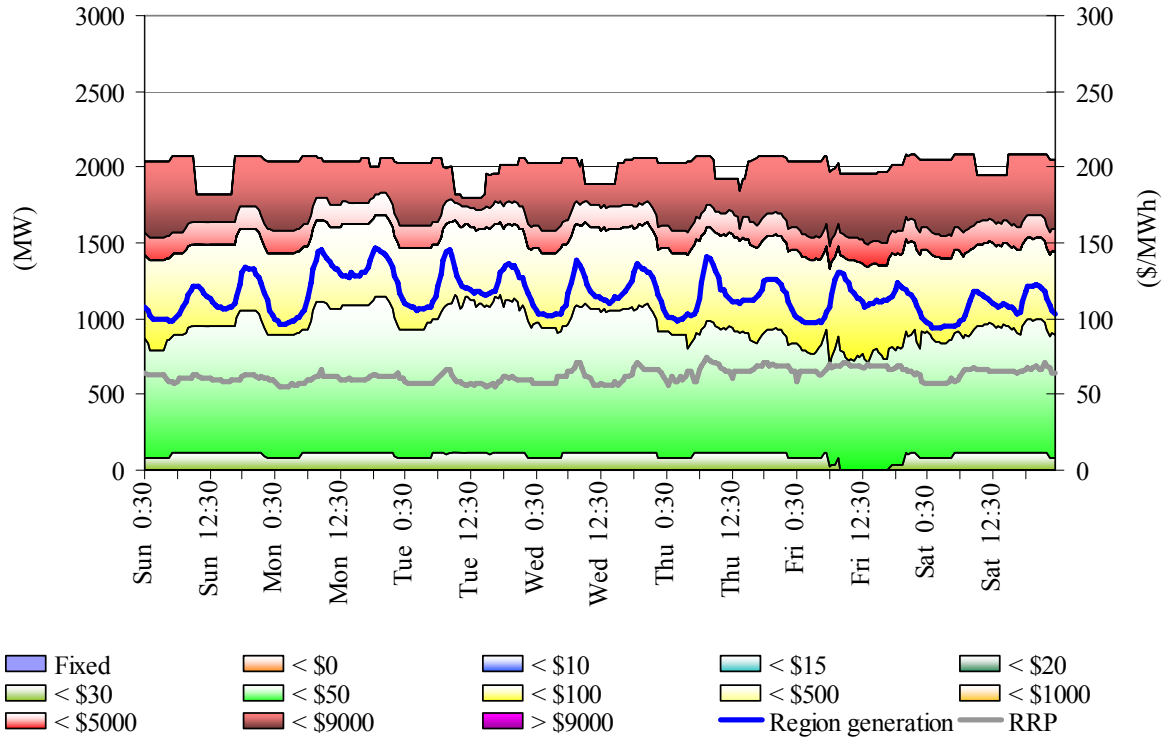


Figure 55: Tasmania closing bid prices, despatched generation and spot price



Ancillary service market

The total cost of ancillary services on the mainland for the week was $360,000 or 0.4 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 ($)	2.02	1.38	1.02	1.20	0.20	0.28	1.25	1.39
Previous week($)	2.29	1.53	1.60	1.58	0.36	0.44	4.22	1.35
Last Quarter($)	1.43	0.69	0.98	1.36	0.16	0.12	1.16	1.58
Market Cost ($1000s)	$116	$79	$73	$26	$2	$3	$31	$30
% of energy market	0.13%	0.09%	0.08%	0.03%	0.00%	0.00%	0.03%	0.03%

In Tasmania, ancillary service costs totalled $137,000 or one per cent of turnover. The cost of raise 6 second fell from $225,000 the previous week to $21,000.

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 ($)	2.45	1.05	1.05	1.07	1.66	1.05	1.05	1.08
Previous week($)	26.34	1.05	1.05	1.05	2.35	1.07	1.08	1.10
Market Cost ($1000s)	$21	$9	$10	$9	$21	$31	$26	$9
% of energy market	0.18%	0.08%	0.08%	0.07%	0.18%	0.26%	0.21%	0.07%

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

Figure 58: daily frequency control ancillary service costs

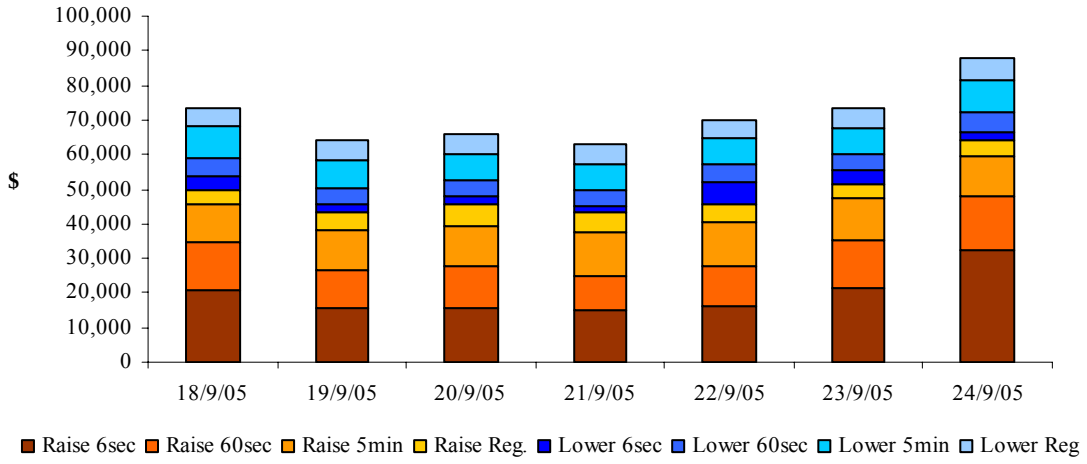
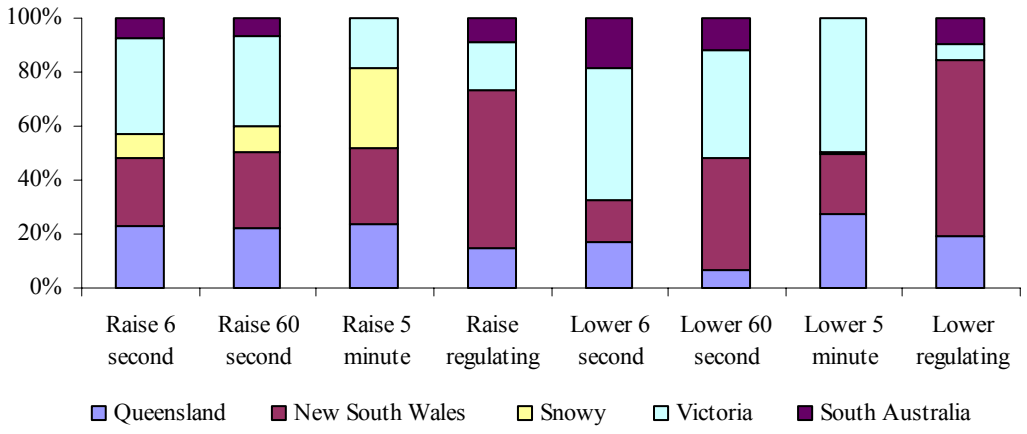


Figure 59 shows the regional weekly participation in each of the ancillary service markets on the mainland.

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

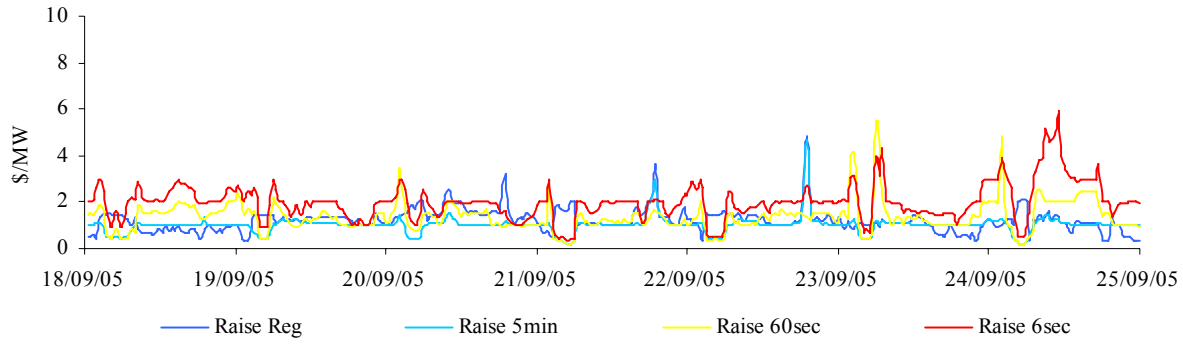


Figure 60A: prices for raise services - Tasmania

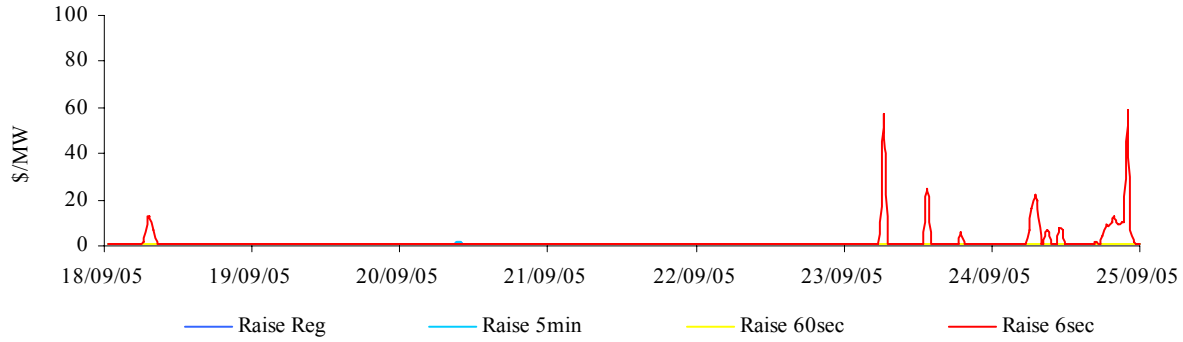


Figure 61: prices for lower services

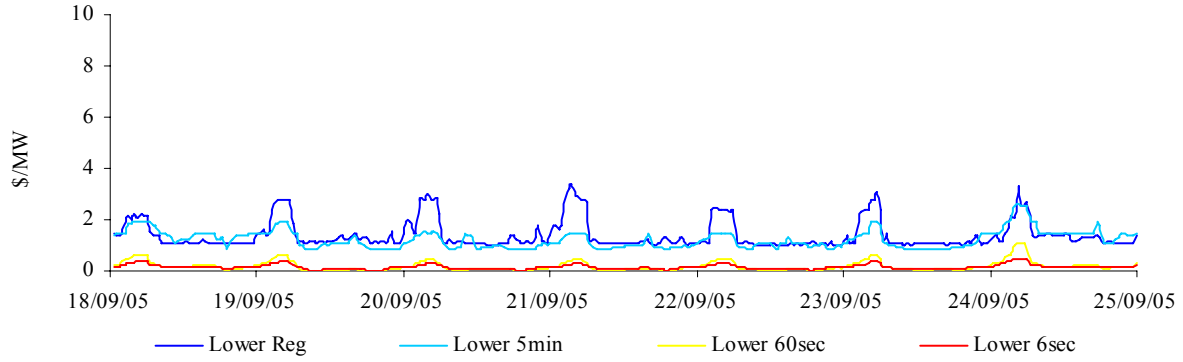
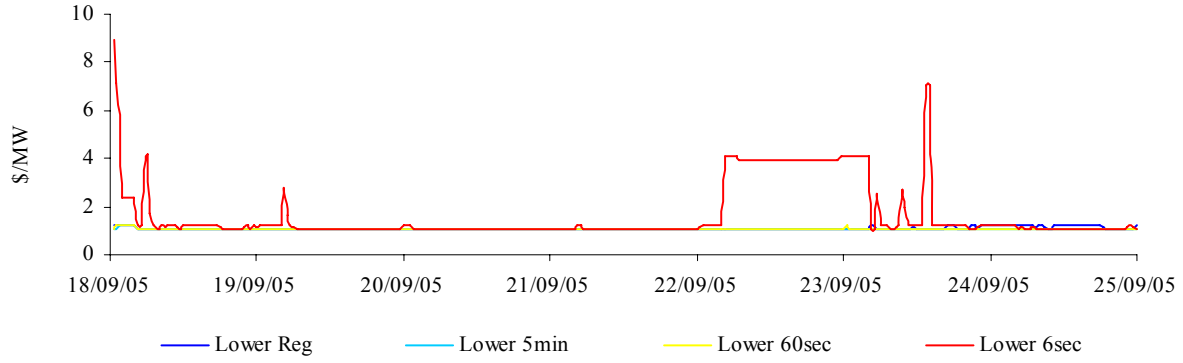


Figure 61A: prices for lower services - Tasmania



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

Figure 62: raise requirements

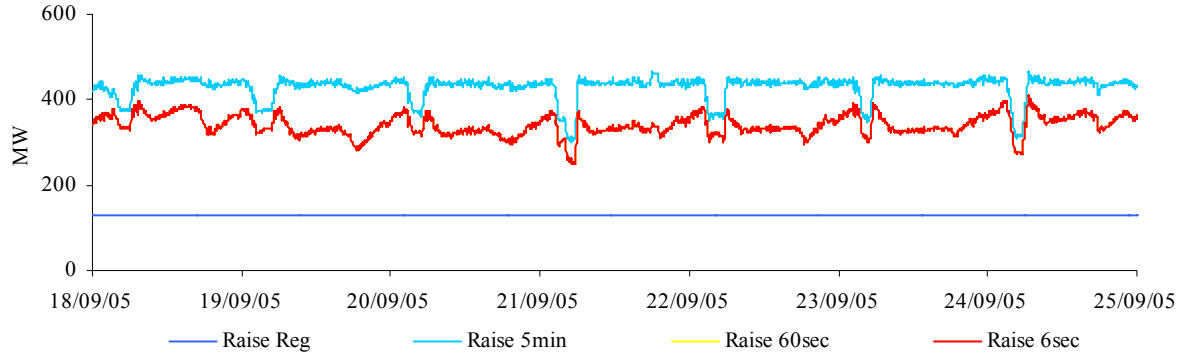


Figure 62A: raise requirements - Tasmania

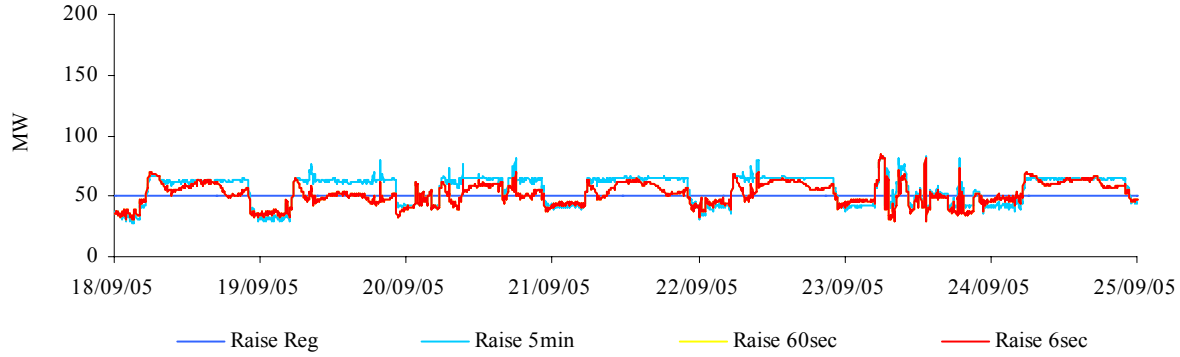


Figure 63: lower requirements

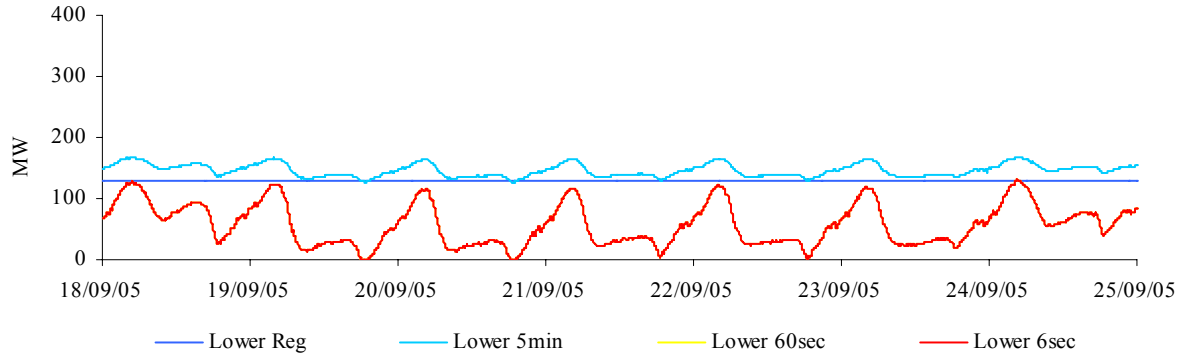
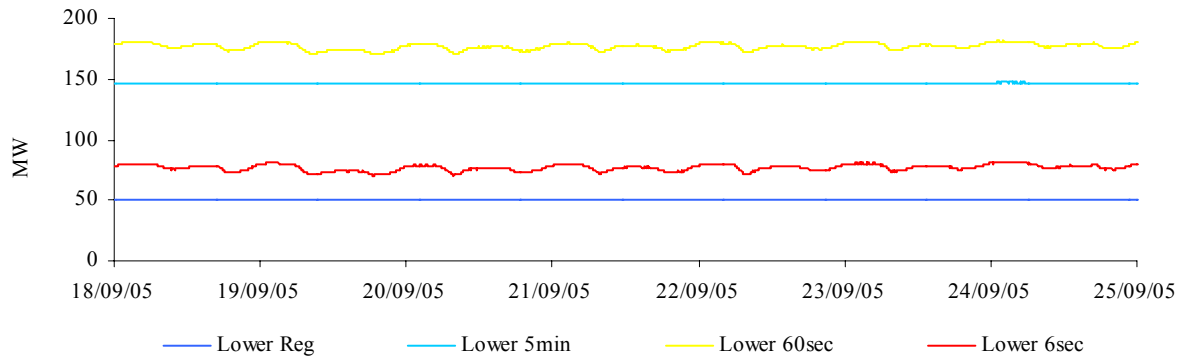


Figure 63A: lower requirements - Tasmania



Australian Energy Regulator
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