Market analysis

AUSTRALIAN ENERGY REGULATOR

20 – 26 NOVEMBER 2005

Average prices for the week were around $20/MWh in Queensland, New South Wales and Victoria. This represents a reduction of around 10 per cent compared to the previous week.

In South Australia prices averaged $39/MWh. A price spike on Thursday afternoon to $3 387/MWh, coincided with a step change in the price offered by TRU Energy through their day ahead bids.

The average price in Tasmania was $54/MWh for the week, the lowest since Tasmania entered the market.

Turnover in the energy market for the mainland was $71 million. The total cost of ancillary services for the week was around $700 000 or one per cent of turnover. Turnover in Tasmania for the week was $10 million and the cost of ancillary services was $117 000 or one per cent of turnover.

Significant variations between actual prices and those forecast 4 and 12 hours ahead occurred in 22, or 7 per cent, of trading intervals, with demand forecast error the main contributor. 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 around two thirds 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	17	19	20	39	54
Previous week	19	22	22	54	58
Same quarter last year	48	90	38	54	
Financial year to date	23	42	30	35	91
% change from previous week	▼8	▼12	▼12	▼28	▼7
% change from same quarter last year	▼64	▼79	▼49	▼28	
% change from year to date	▼33	▼3	▼9	▼7	

Figure 2: national demand and spot prices

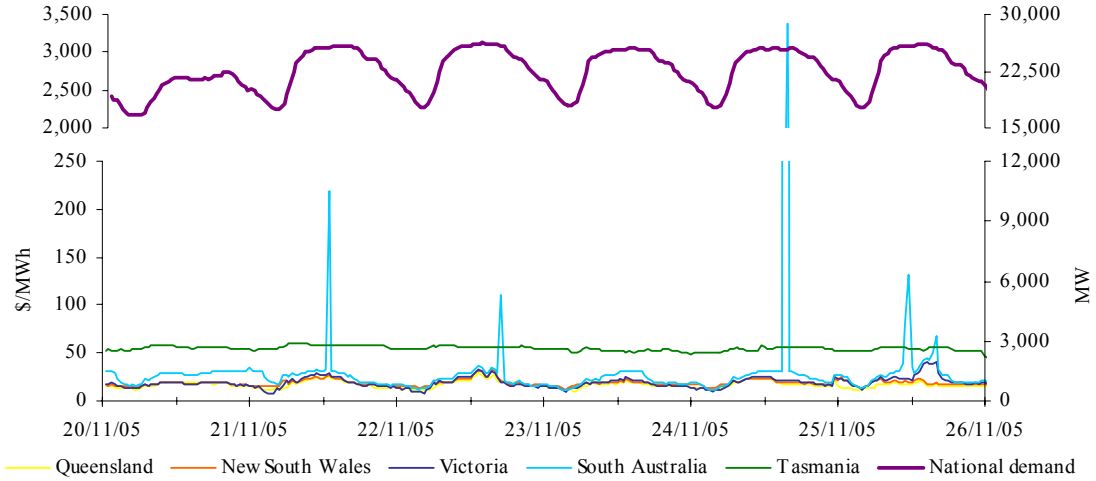


Figure 3: volatility index during peak periods

	QLD	NSW	VIC	SA	TAS
Last week	0.41	0.36	0.48	0.50	0.12
Previous week	0.51	0.79	0.86	0.75	0.15
Same quarter last year	1.13	1.23	0.96	0.77	-

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

Figure 4: Queensland

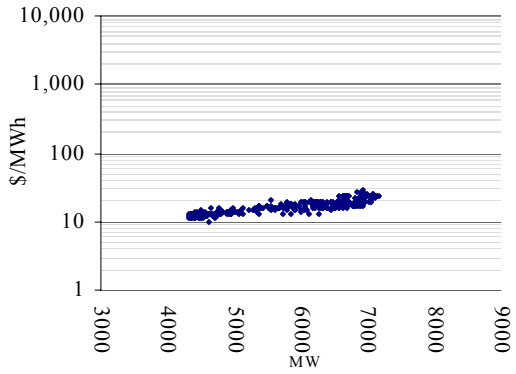


Figure 5: New South Wales

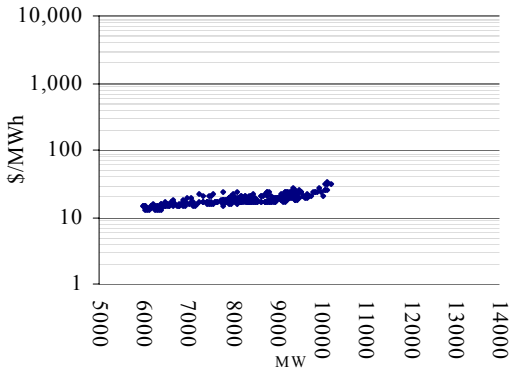


Figure 6: Victoria

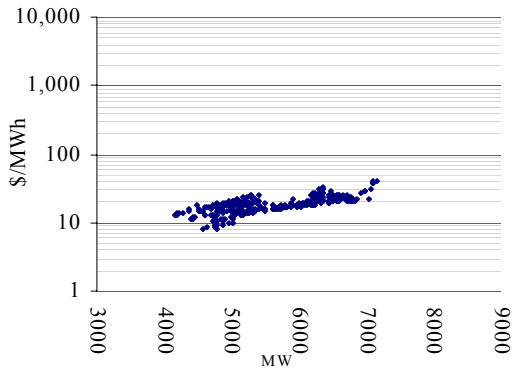


Figure 7: South Australia

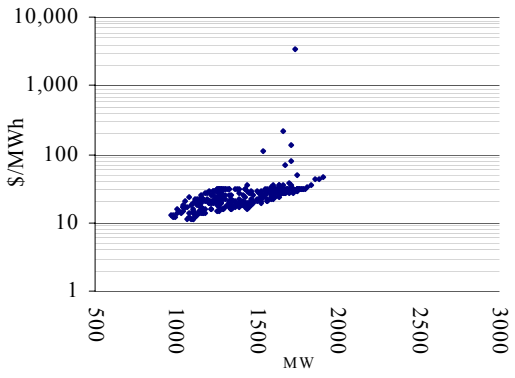
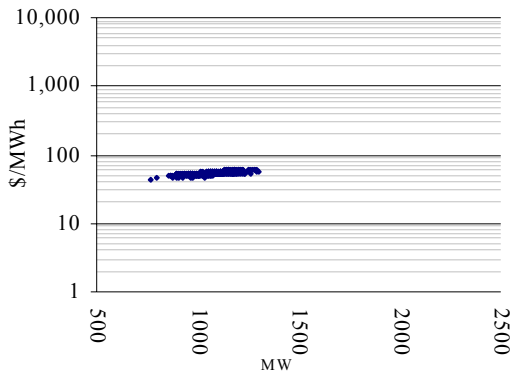


Figure 8: Tasmania



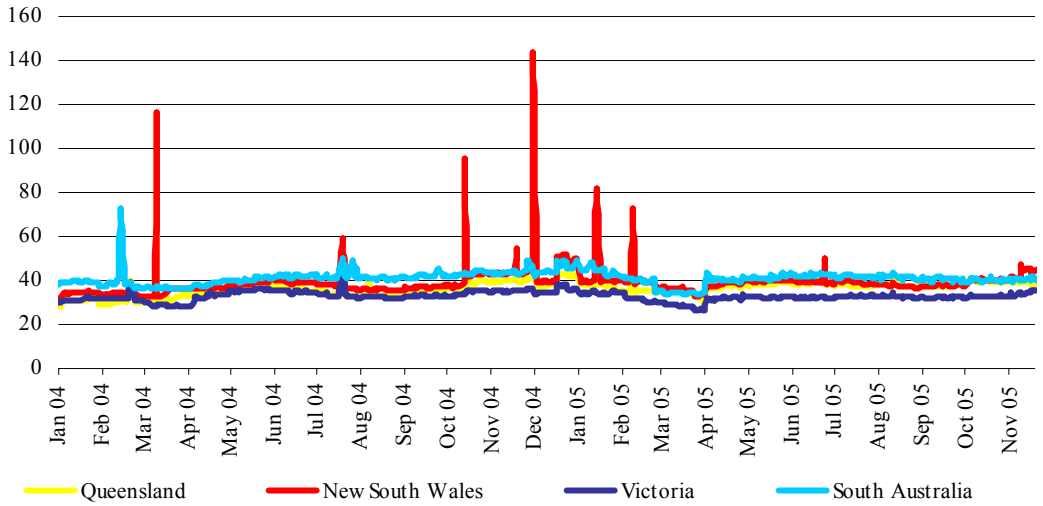
Maximum spot prices for the week were $29/MWh in Queensland, $33/MWh in New South Wales, $40/MWh in Victoria and $61/MWh in Tasmania. In South Australia the maximum spot price was $3 387/MWh on Thursday afternoon.

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	38.74	38.49	38.18	38.06	37.92
New South Wales	44.59	45.21	43.49	43.02	42.89
Victoria	35.44	35.00	34.94	35.18	35.27
South Australia	40.14	40.12	40.39	41.02	40.47

Figure 10: d-cyphaTrade WEPI



Reserve

There were no low reserve conditions forecast for 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

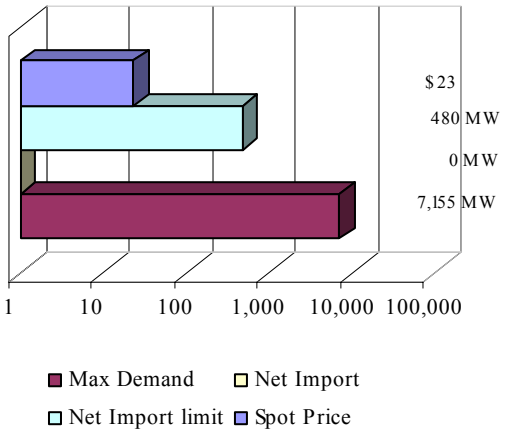


Figure 12: New South Wales

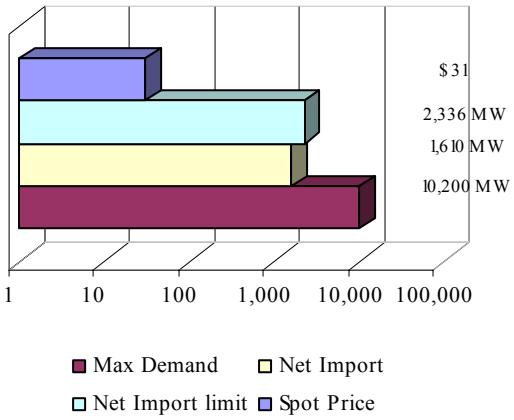


Figure 13: Victoria

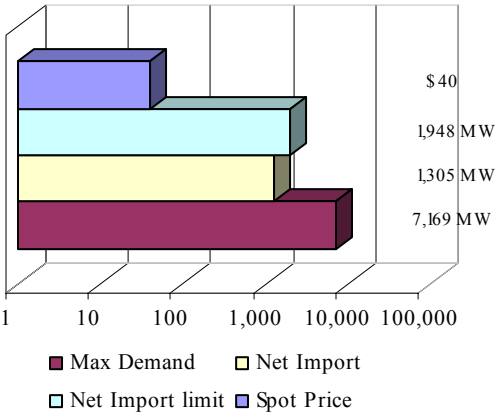
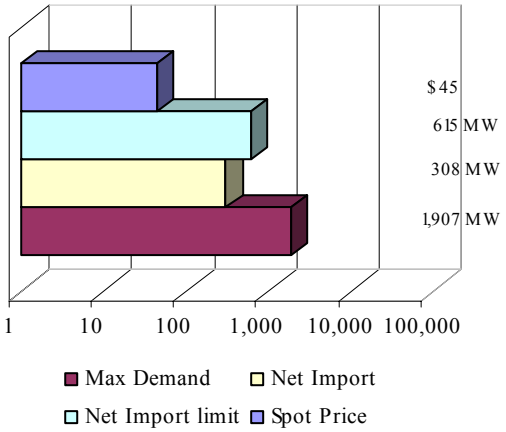


Figure 14: South Australia



In Tasmania, demand reached a maximum of 1 298MW at 7.30am on Wednesday, 23 November. The spot price at the time was $21/MWh.

Price variations

There were 22 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

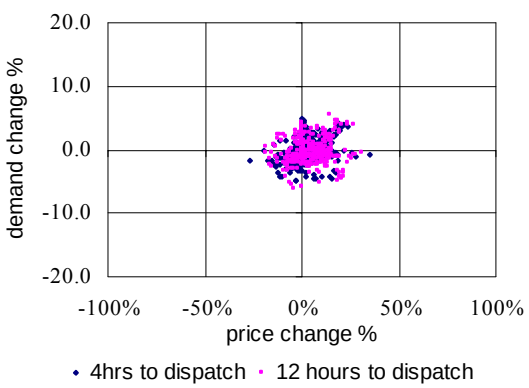


Figure 16: New South Wales

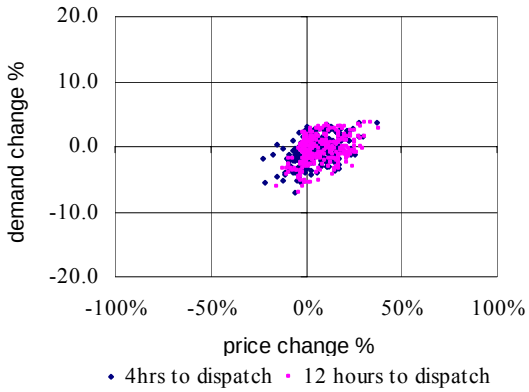


Figure 17: Victoria

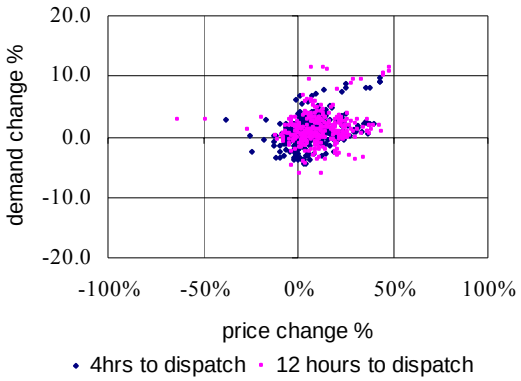


Figure 18: South Australia

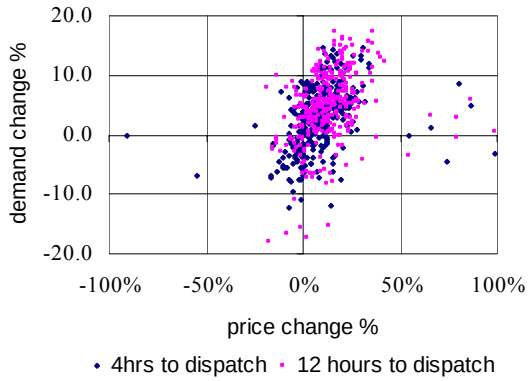


Figure 19: Tasmania

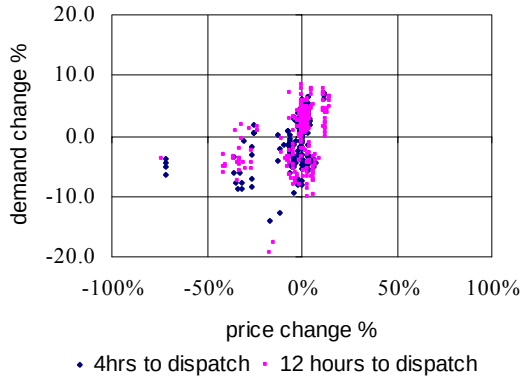
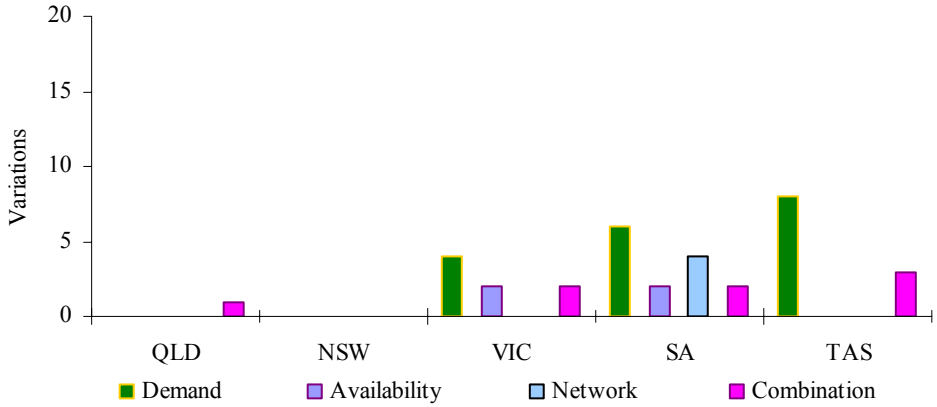


Figure 20 summarises the number and most probable reason for variations between forecast and actual prices.

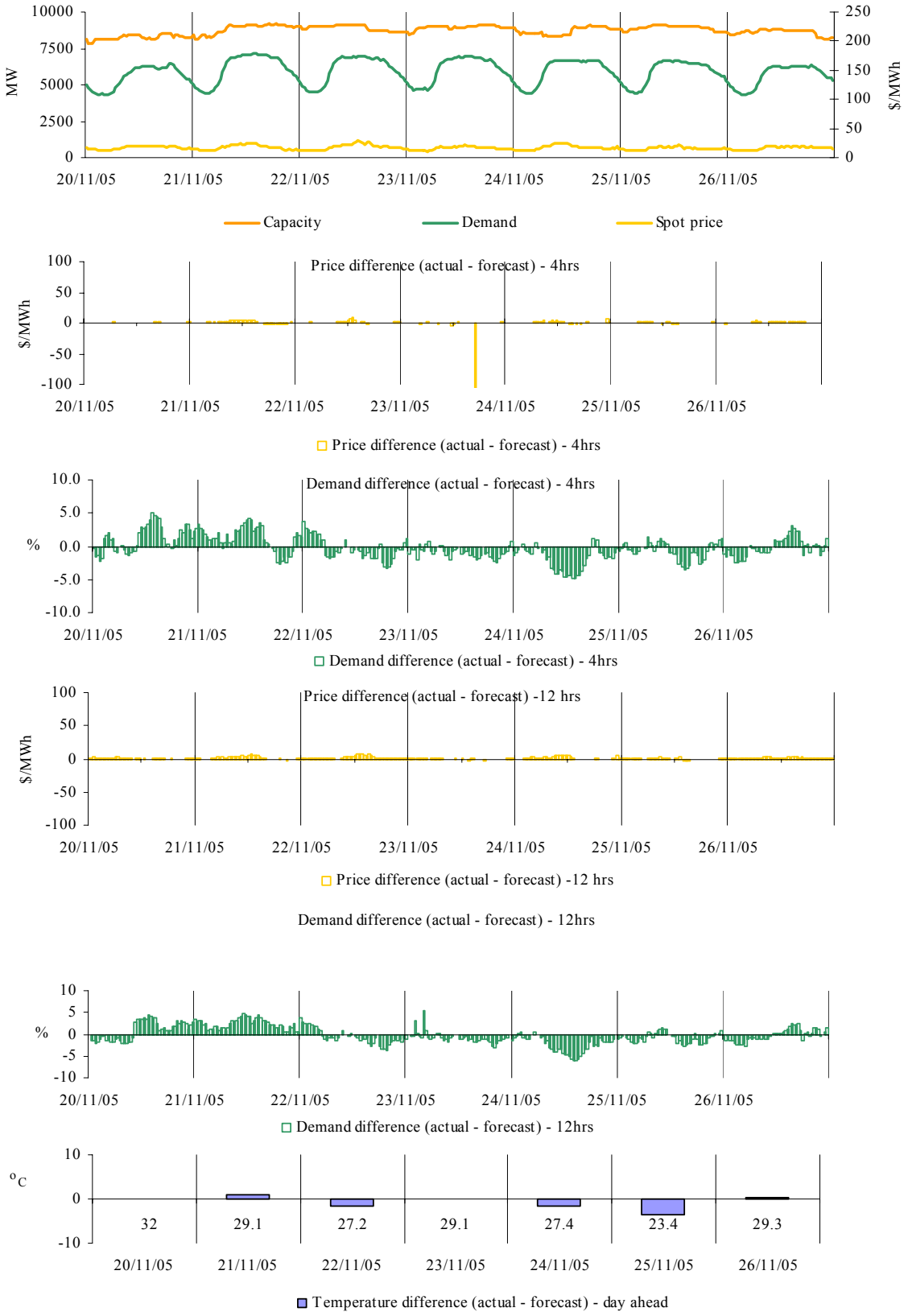
Figure 20: reasons for variations between forecast and actual prices



Price and demand

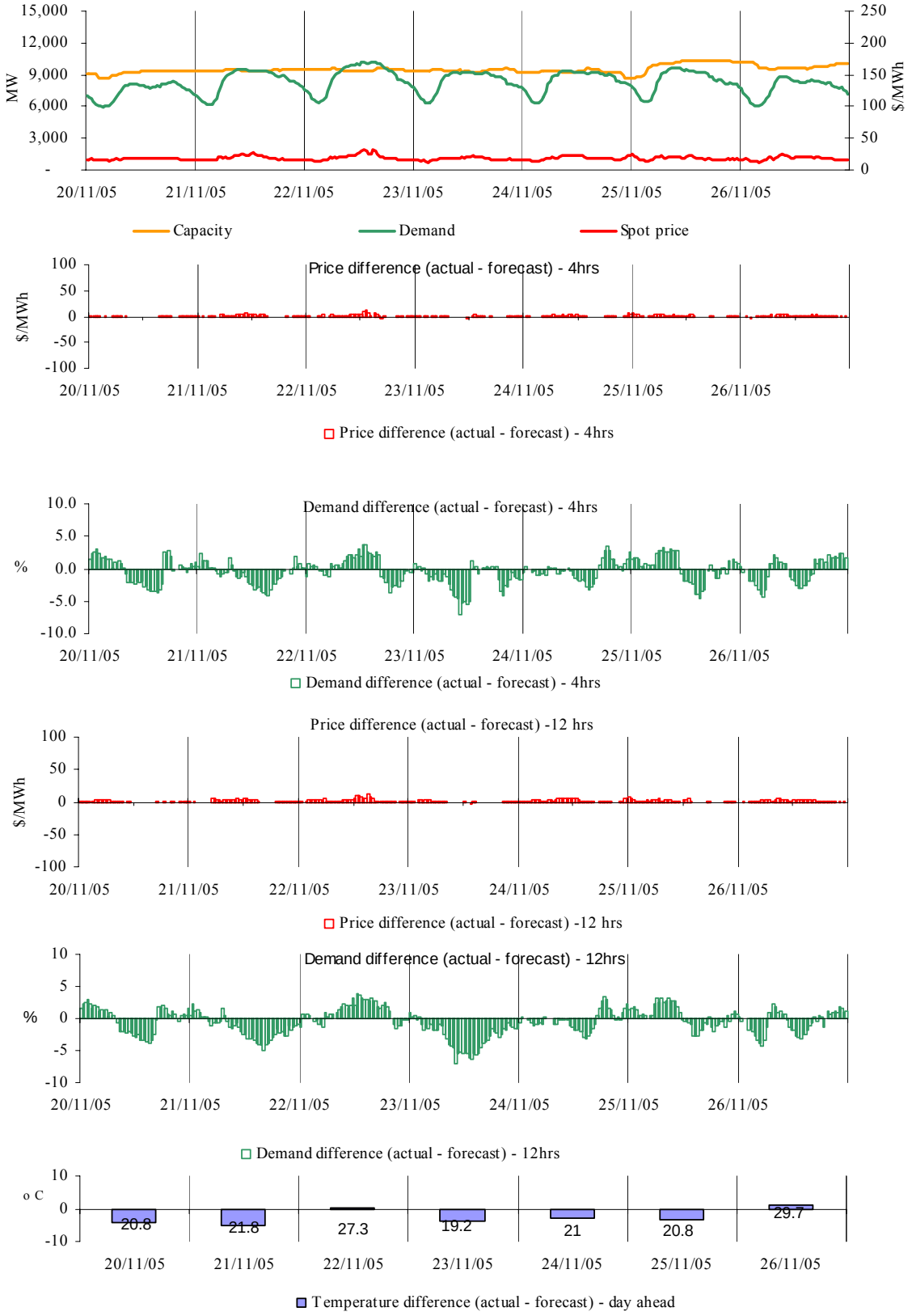
Figures 21 - 50 set out details of spot prices and demand on a regional basis. They include the actual spot price, actual demand outcomes and variation from forecasts made 4 and 12 hours ahead of dispatch on a daily basis. The differences between the maximum temperature and the temperature forecast at 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



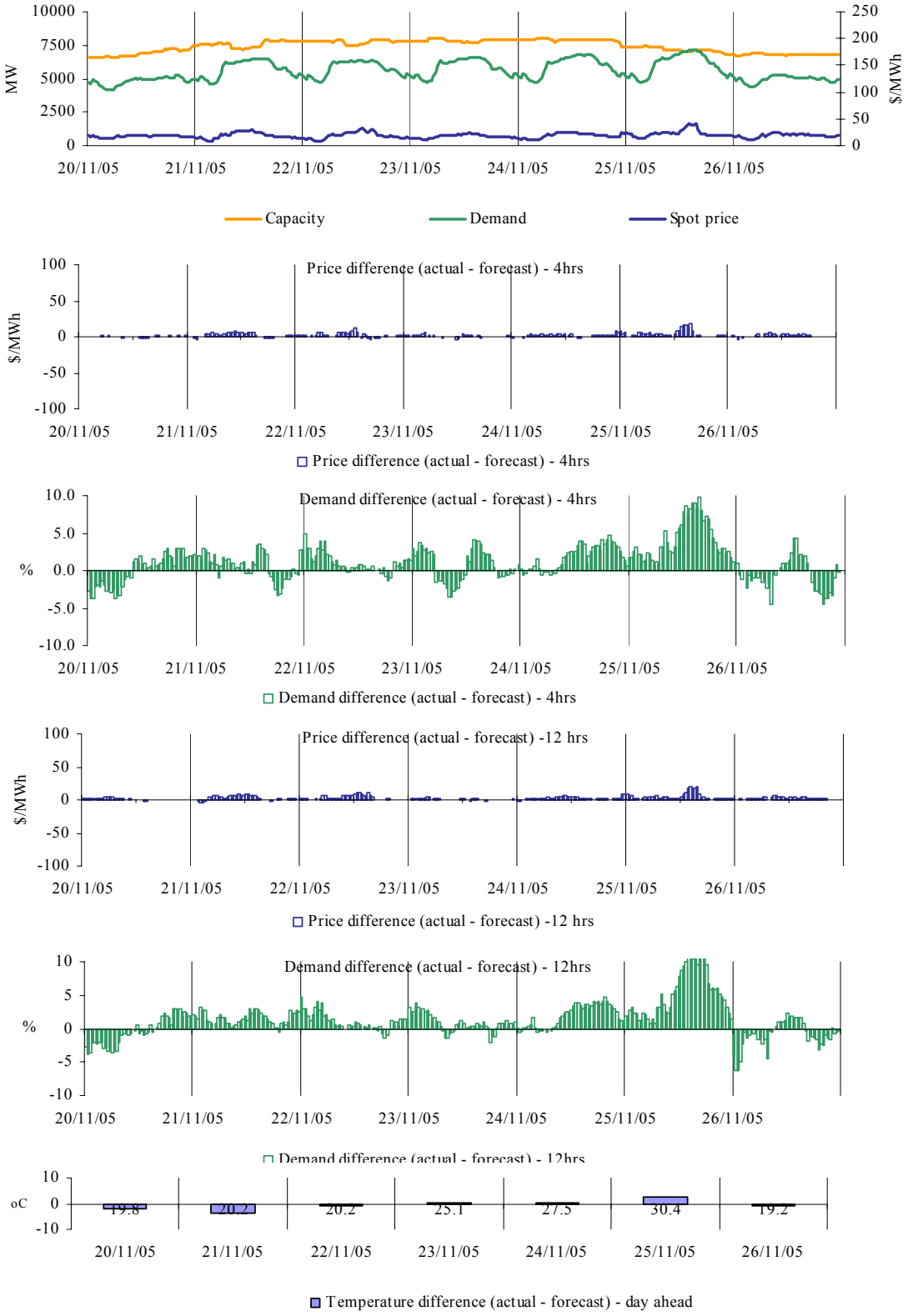
There were no occasions in Queensland where the spot price was greater than three times the weekly average price of $17/MWh.

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



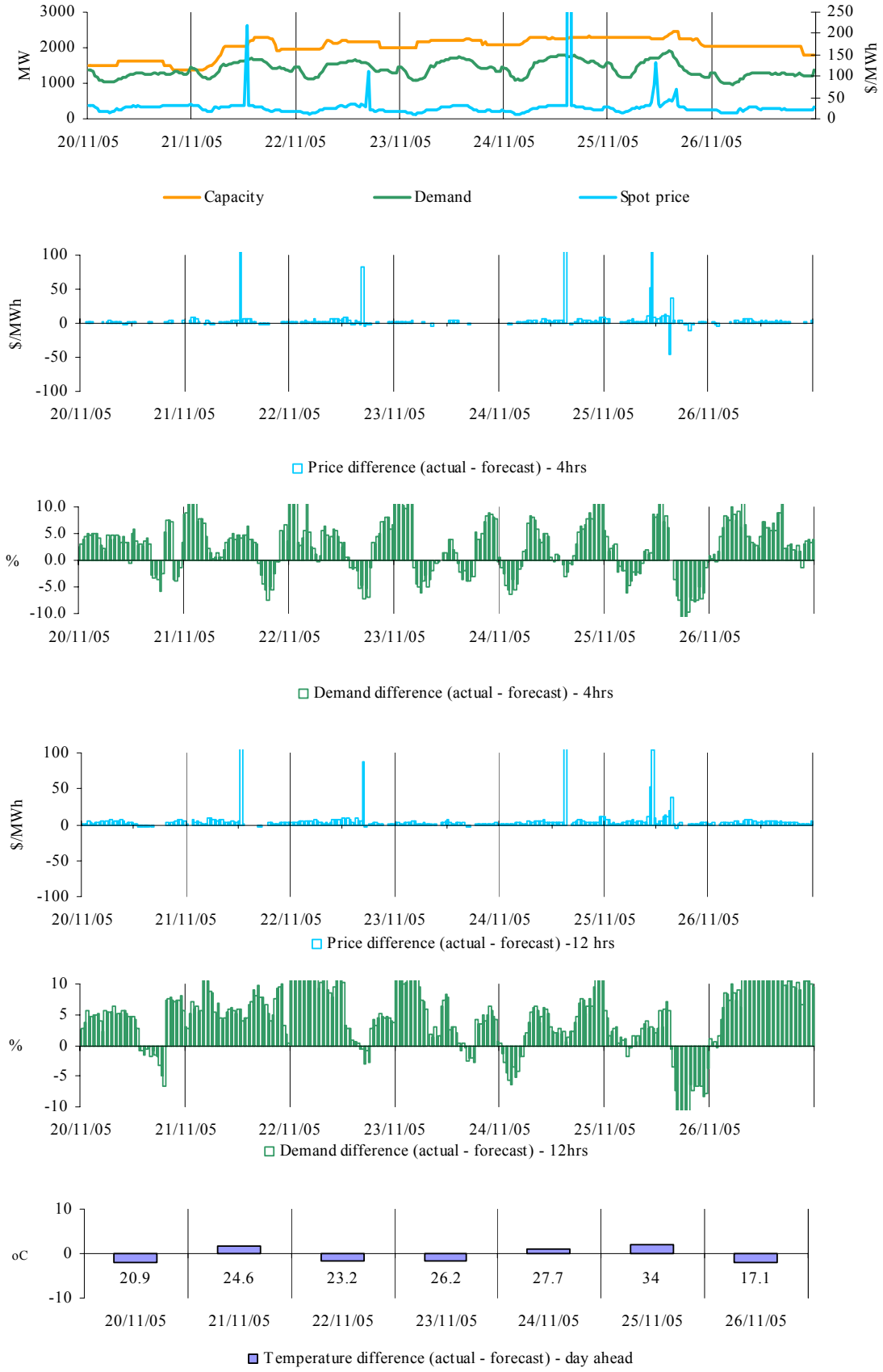
There were no occasions in New South Wales where the spot price was greater than three times the weekly average price of $19/MWh.

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



There were no occasions in Victoria where the spot price was greater than three times the weekly average price of $20/MWh.

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



There were 3 occasions in South Australia where the spot price was greater than three times the weekly average price of $39/MWh. These occurred on Monday, Thursday and Friday.

Monday, 21 November

1:00 pm	Actual	4 hr forecast	12 hr forecast
Price ($/MWh)	218.19	30.01	30.01
Demand (MW)	1 666	1 587	1 568
Available capacity (MW)	2 058	2 171	2 086

Conditions at the time saw demand about 70MW higher than forecast four hours to dispatch. Imports from Victoria were limited to a combined total of 500MW across the Heywood and Murraylink interconnectors. MurrayLink was limited to imports of 50MW, around 70MW lower than the four hour ahead forecast.

As part of its day ahead bid, TRU Energy set up a step change in the price of capacity offered at Torrens Island for the period between 1pm and 4pm. As a result 180MW of capacity that was priced at $40/MWh in surrounding periods was priced at more than $600/MWh.

There was around 40MW of capacity at NRG Flinders' Osborne station priced at $50/MWh, and around 40MW of capacity priced around $275/MWh at Angaston power station. The capacity at Osborne was limited to an increase of 10MW per dispatch interval. This was the only capacity priced between $40/MWh and $600/MWh.

Torrens Island set the dispatch price at $600/MWh at 12.45pm.

There was no significant rebidding.

Thursday, 24 November

3:30 pm	Actual	4 hr forecast	12 hr forecast
Price ($/MWh)	3386.71	31.00	31.00
Demand (MW)	1 742	1 796	1 730
Available capacity (MW)	2 274	2 313	2 336

Conditions at the time saw demand around 50MW lower than forecast. The Heywood interconnector was importing 460MW of capacity from Victoria, at its nominal limit. Flows into South Australia across the MurrayLink interconnector were limited to close to zero, and around 80MW lower than forecast four hours to dispatch.

As part of its day ahead bid, TRU Energy set up a step change in the price of capacity offered at Torrens Island for the period between 3pm and 4pm. As a result 300MW of capacity that was priced at $40/MWh in surrounding periods was priced at more than $5 000/MWh.

There was around 40MW of capacity at NRG Flinders' Osborne station priced at $50/MWh, and a further 40MW of capacity priced at around $275/MWh at Angaston power station. The capacity at Osborne was limited to an increase of 10MW a dispatch interval. This was the only capacity priced between $40/MWh and $5 000/MWh.

Torrens Island set the dispatch price at around $5 000/MWh for the 3.05pm to 3.20pm dispatch intervals.

At 3.13pm, Origin Energy rebid 46MW of capacity at Quarantine, effective 3.20pm, from prices around $9 000/MWh to prices of zero. The rebid reason given was 'Est (N) Change in PDS'.

At 3.22pm, AGL rebid 50MW of capacity at Hallet, effective 3.25pm, from prices above $9 000/MWh to prices of zero. The rebid reason given was 'Plant limitations::ST PASA'.

There was no other significant rebidding.

Friday, 25 November

11:30 am	Actual	4 hr forecast	12 hr forecast
Price ($/MWh)	131.65	25.65	27.30
Demand (MW)	1 717	1 570	1 671
Available capacity (MW)	2 259	2 276	2 276

Conditions at the time saw demand 145MW higher than forecast. Lightning in the vicinity the Heywood interconnector led to flows into South Australia reduced by around 300MW compared to forecast.

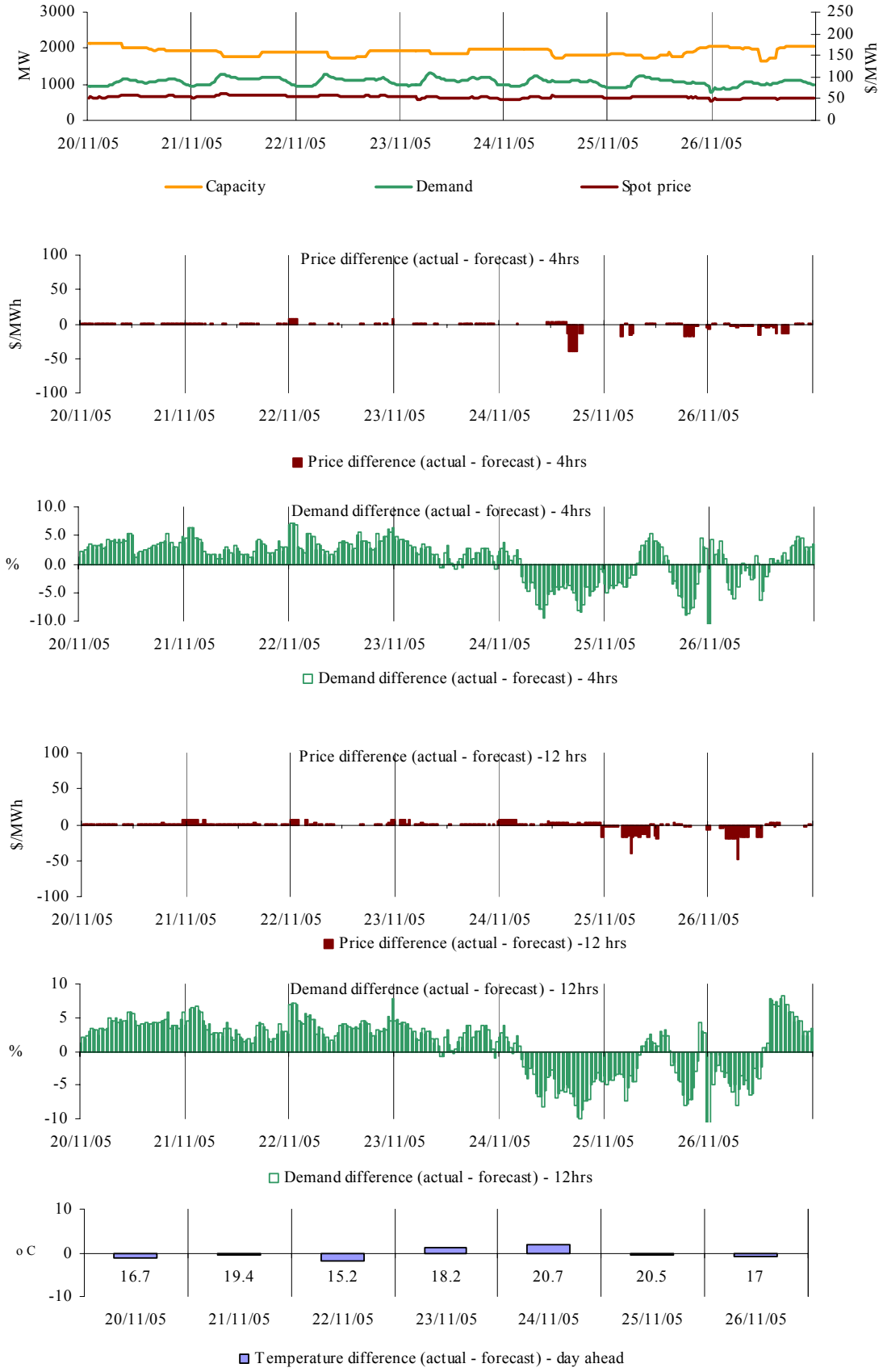
At 10.31am, International Power rebid 75MW of capacity at its Pelican Point from prices above $9 000/MWh to prices of $31/MWh and $96/MWh. Its rebid reason was 'VIC/SA I/C derating'. Shortly after at 11.20am, effective 11.30am this capacity was shifted to prices of $298/MWh. The rebid reason given was 'SA demand management'.

At 10.42am, NRG Flinders shifted 53MW of capacity at Osborne, from prices of $51/MWh to $150/MWh. The rebid reason given was 'avoid on/off cycling of peaking plant'. At 11.09am a further rebid saw this capacity shifted to prices of $30/MWh, effective from 11.20am. The rebid reason given was 'maintain OCPL peaker output'.

Over two rebids at 11am and 11.09am, effective 11.10am and 11.20am respectively, Origin Energy rebid 88MW of capacity at its Quarantine power station, from prices of $9 000/MWh to $0/MWh. Its rebid reason was 'Est (N) Change in PDS'.

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 $54/MWh.

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

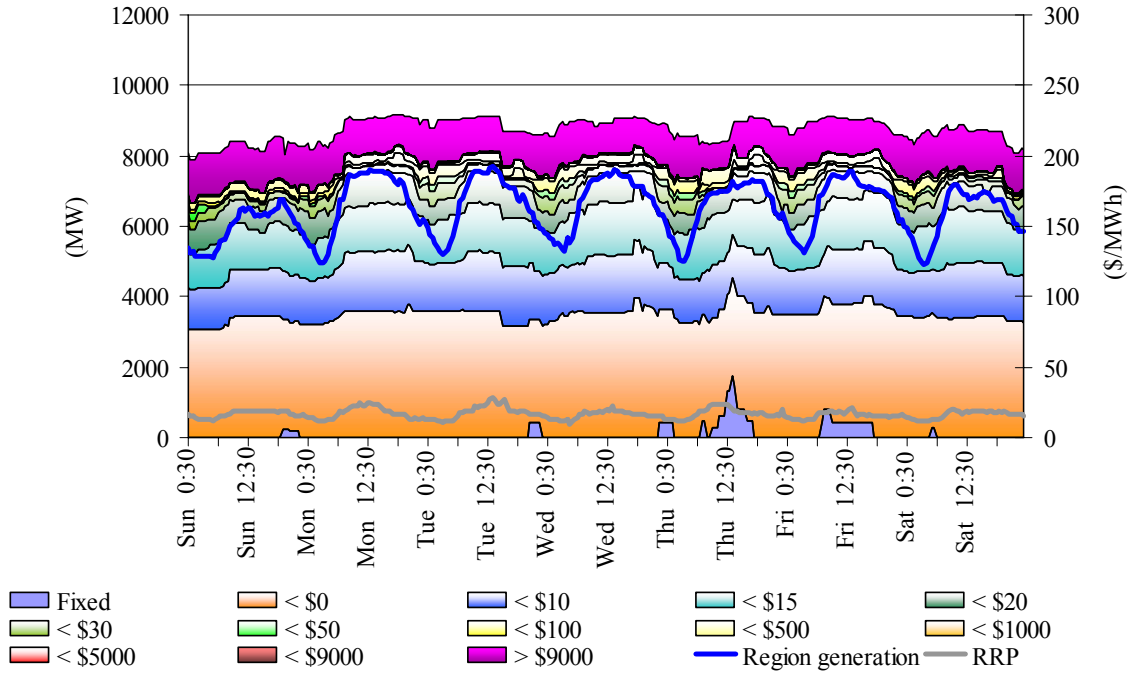


Figure 52: New South Wales closing bid prices, dispatched generation and spot price

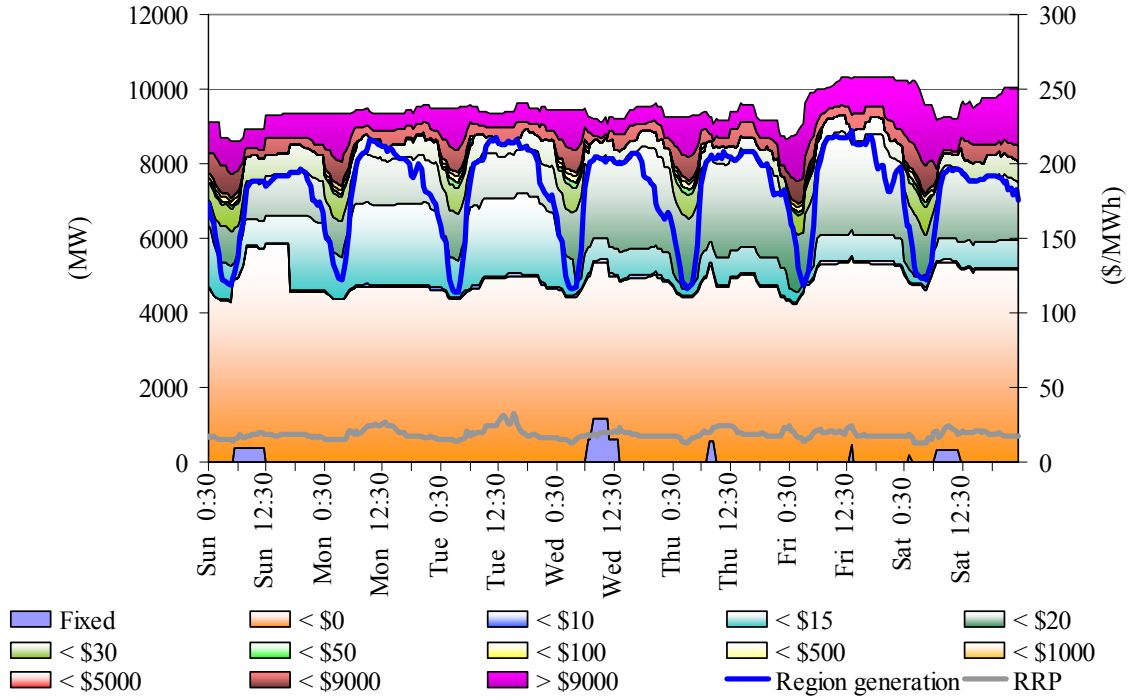


Figure 53: Victoria closing bid prices, dispatched generation and spot price

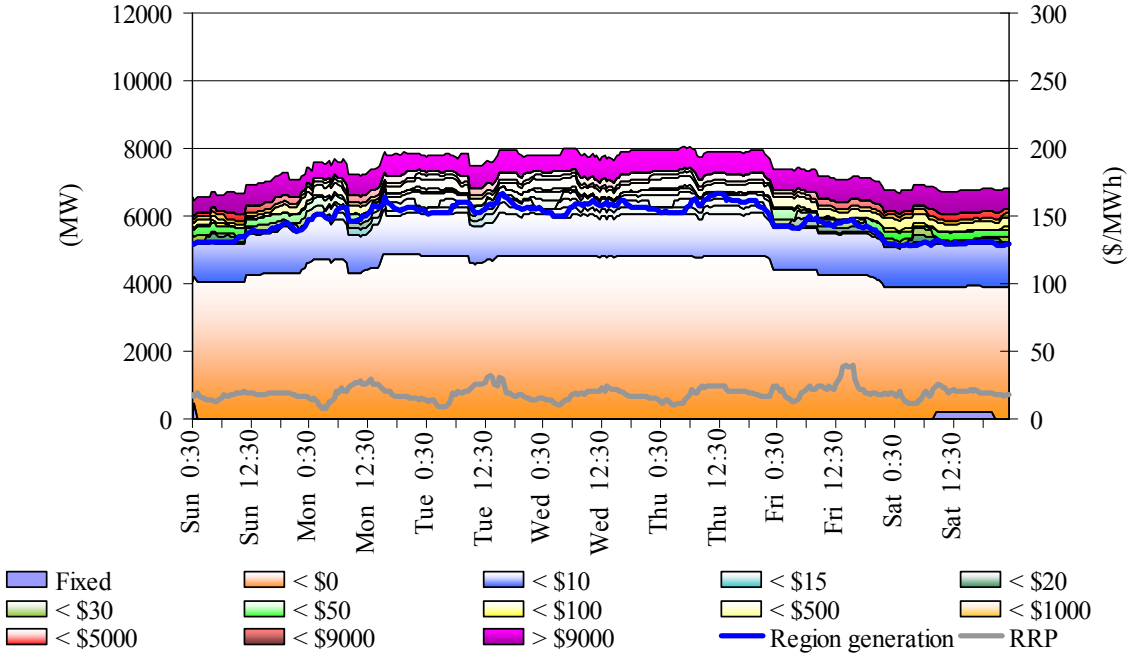


Figure 54: South Australia closing bid prices, dispatched generation and spot price

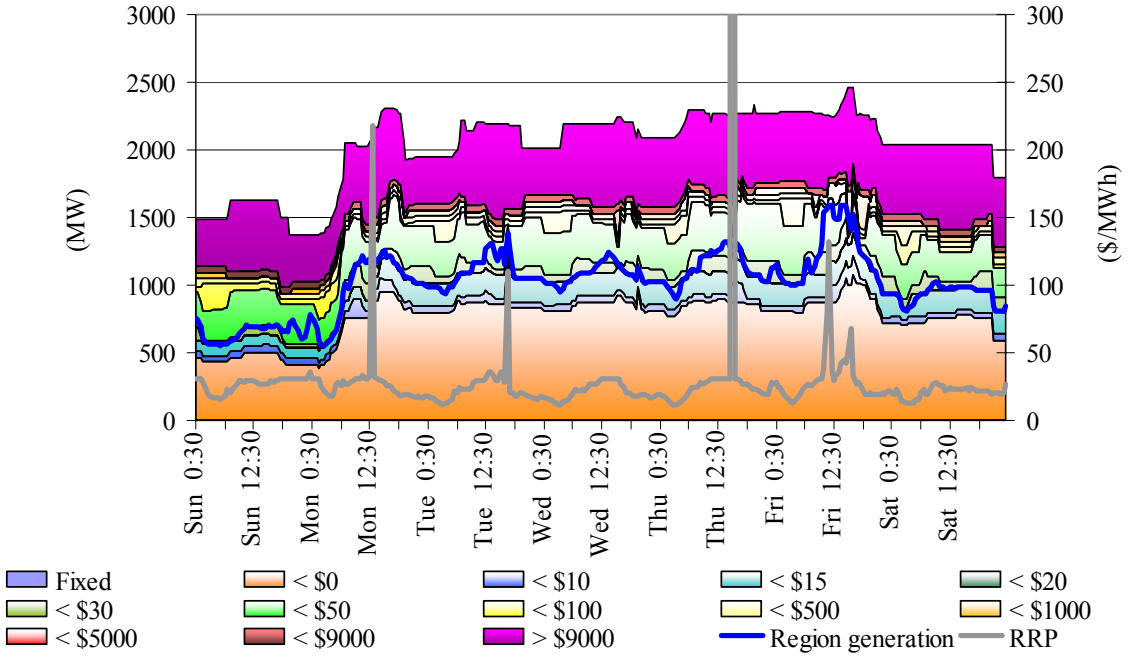
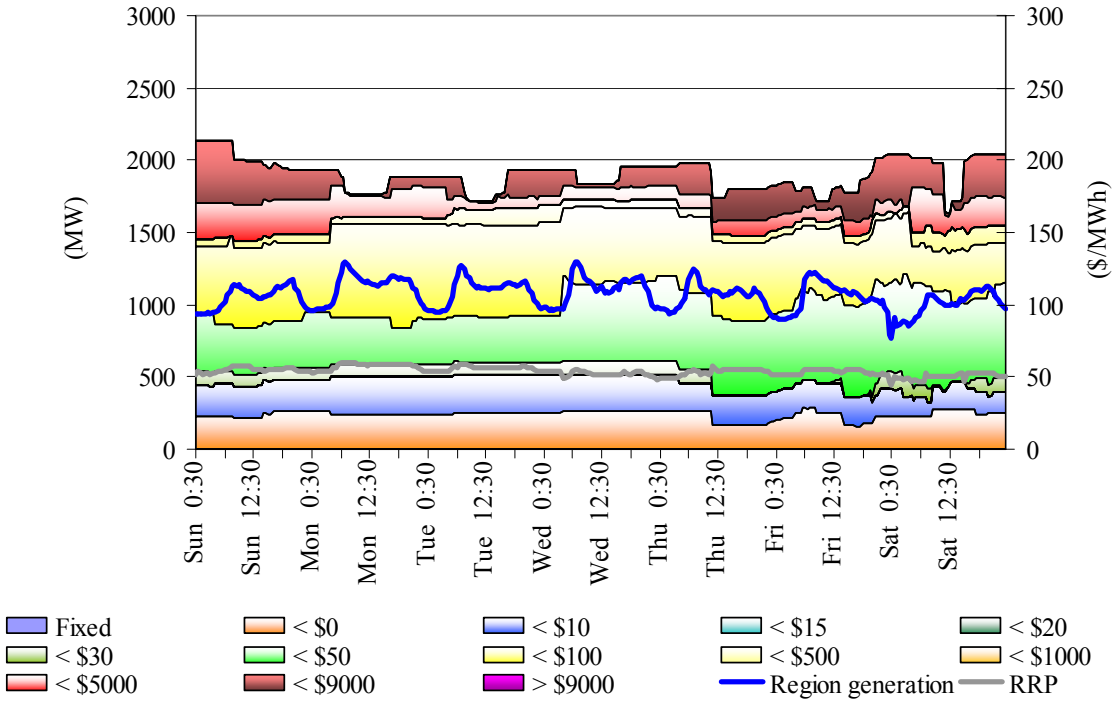


Figure 55: Tasmania closing bid prices, dispatched generation and spot price



Ancillary service market

The total cost of ancillary services on the mainland for the week was around $706 000 or one per cent of the total turnover in the energy market. A network outage in Victoria which commenced on Monday 14 November continued this week. This led to further increased requirements for lower contingency services. 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	1.80	0.60	1.02	1.59	0.27	1.82	5.51	1.77
Previous week	2.70	0.74	1.17	1.67	0.31	2.45	7.53	2.10
Last quarter	1.62	0.91	1.00	1.36	0.20	0.64	2.29	1.56
Market Cost ($1000s)	95	32	70	35	3	87	347	39
% of energy market	0.13	0.04	0.10	0.05	0.00	0.12	0.49	0.05

The total cost of ancillary services in Tasmania for the week was $117 000 or one 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	1.15	1.05	1.05	1.08	1.09	1.05	1.05	1.05
Previous week	1.11	1.05	1.05	1.06	1.07	1.05	1.05	1.05
Last quarter	19.40	1.05	1.14	2.25	6.25	1.06	1.06	1.26
Market Cost ($1000s)	9	9	9	9	14	32	26	9
% of energy market	0.09	0.08	0.08	0.09	0.14	0.30	0.24	0.08

Figure 58 shows the daily breakdown of cost for each frequency control ancillary service, and highlights the additional costs resulting from the network outage.

Figure 58: daily frequency control ancillary service costs

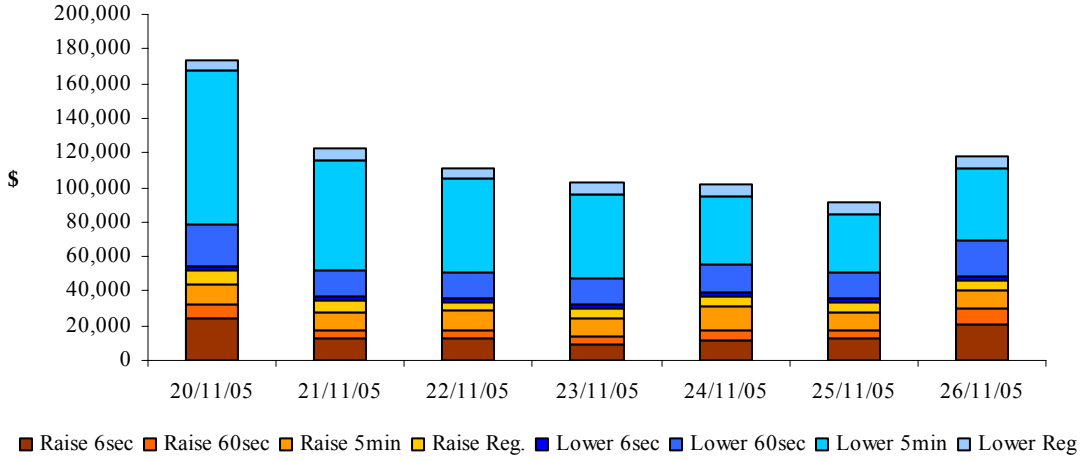
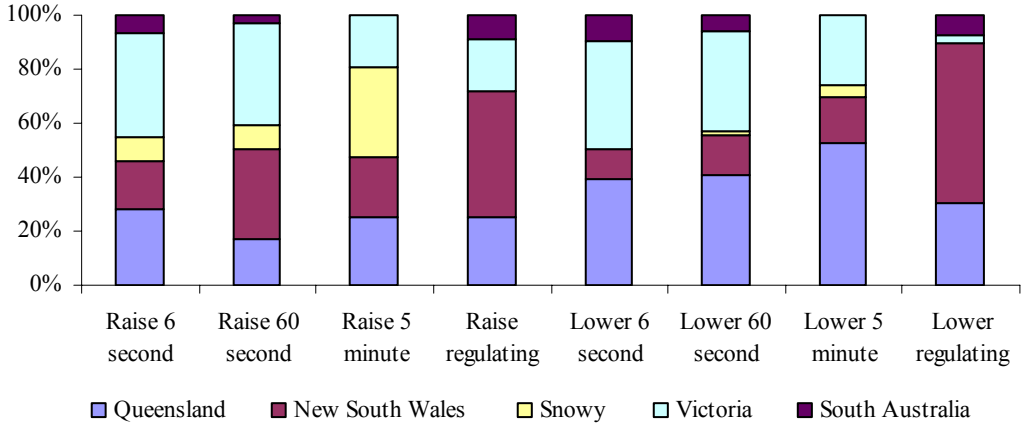


Figure 59 shows the contribution, on a percentage basis, that frequency control ancillary service providers are utilised (in each mainland region) to satisfy the total requirement for each service.

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

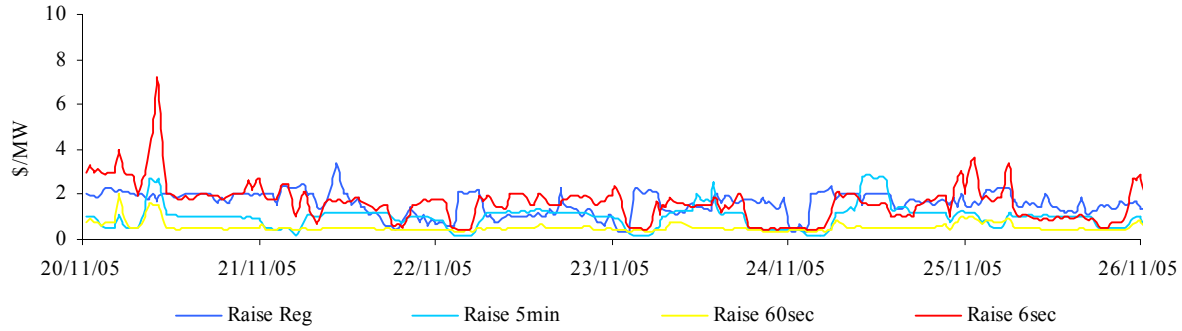


Figure 60A: prices for raise services - Tasmania

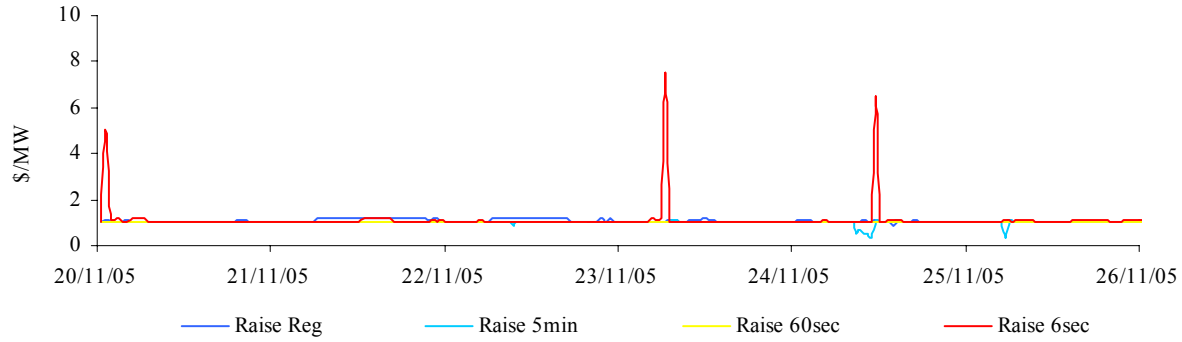


Figure 61: prices for lower services

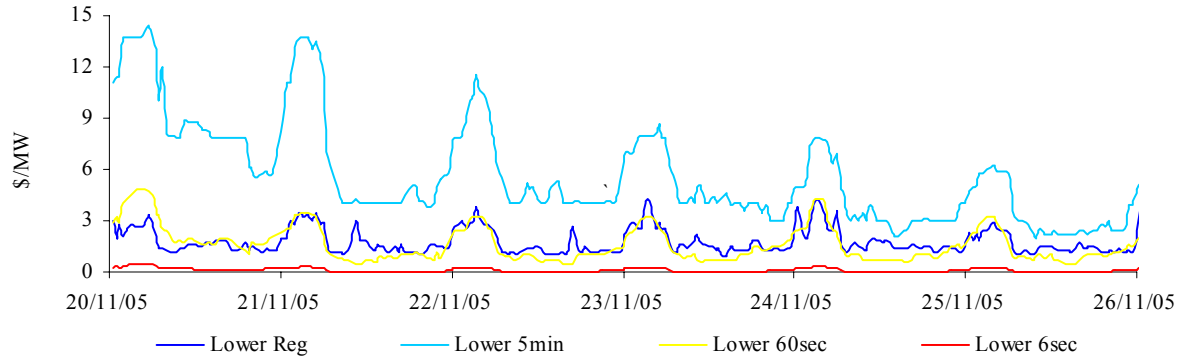
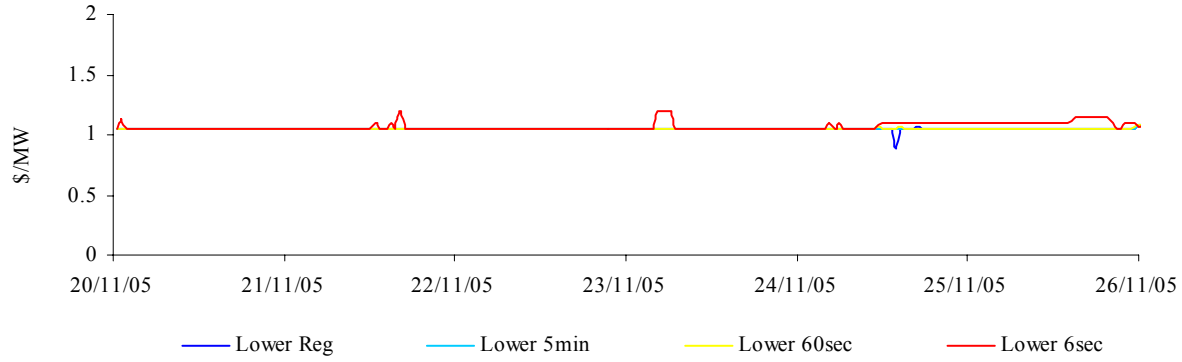


Figure 61A: prices for lower services - Tasmania



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

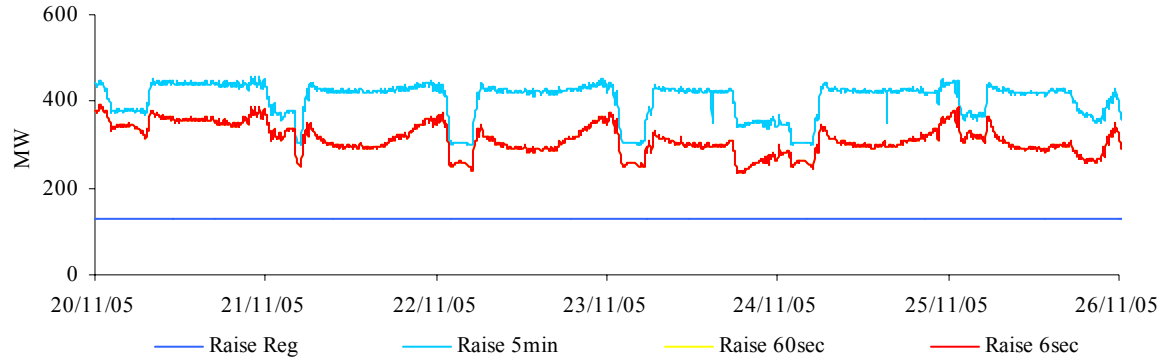


Figure 62A: raise requirements - Tasmania

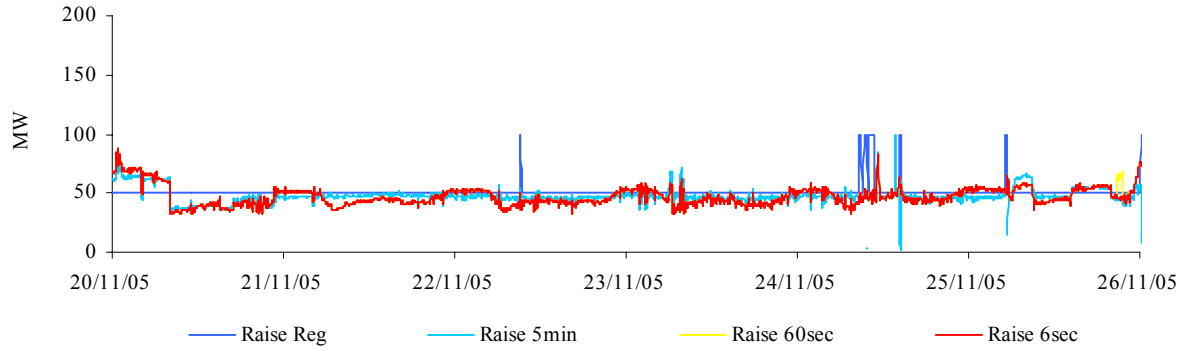


Figure 63: lower requirements

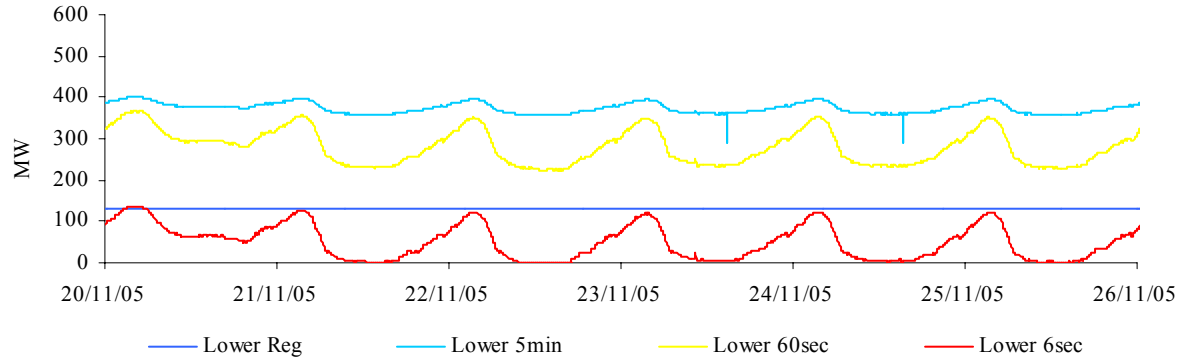
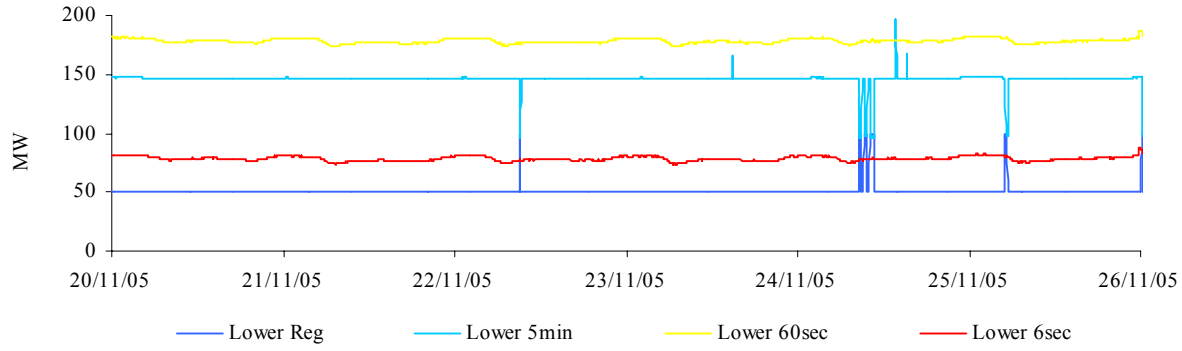


Figure 63A: lower requirements - Tasmania



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