Market analysis

AUSTRALIAN ENERGY REGULATOR

31 JULY - 6 AUGUST 2005

Spot prices were aligned across the southern regions for most of the week with prices averaged $32/MWh in New South Wales, $33/MWh in Victoria and $38/MWh in South Australia. These prices represented an increase of around a third compared to the previous week. Peak demand in these regions was around 600MW higher than the previous week, contributing to the increased price. Rebidding, relatively close to despatch and in response to demand forecast errors, also contributed.

Spot prices in Queensland averaged $20/MWh, up slightly on the previous week. Flows into New South Wales continued to average around 850MW reflecting the high level of available capacity and mild conditions in Queensland.

In Tasmania the spot price averaged $149/MWh up by almost a fifth compared to the previous week. Lightning in the vicinity of the transmission network in the north of Tasmania on Wednesday evening, resulted in constraints, designed to ensure the safe operation of the power system, being invoked around 5pm.

As a result of these constraints, generation at a number of power stations was reduced by around 200MW. The 5-minute price increased to $10,000/MWh for three dispatch intervals just after 5pm followed by prices at $4,000/MWh for the rest of the hour. The constraints were lifted around 7.30pm.

Just before 8pm, two transmission lines in the same area tripped as a result of the weather. Demand in Tasmania fell by around 400MW following the loss of some industrial load. Price again rose to $10,000 for one 5-minute despatch interval at 8pm. Generation at some power stations reduced immediately following the event. Investigations are continuing.

Turnover in the energy market rose to around $140 million, while the total cost of ancillary services for the week more than doubled to $1.6 million or 1.2 per cent of the total turnover in the energy market. Around $1.2 million of that cost was the result of the events in Tasmania on Wednesday.

Demand forecasts produced 4 and 12 hours ahead varied from actual by more than 5 per cent in around 27 per cent of all trading intervals across the market with around half of all trading intervals in South Australia and Tasmania affected. Significant variations between forecast and actual prices occurred in 83 or a quarter 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 2004-05 financial year. Figure 3 compares the weekly price volatility index with the averages for the previous week and the same quarter last year.

Figure 1: national demand and spot prices

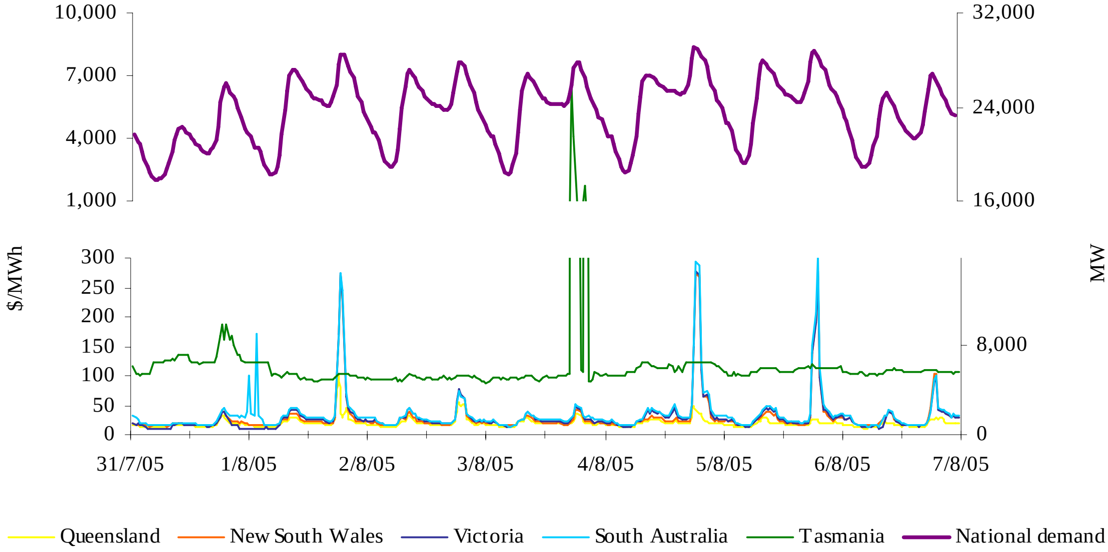


Figure 2: volume weighted average spot price for energy market ($/MWh)

	QLD	NSW	VIC	SA	TAS
Last week	20	32	33	38	149
Previous week	18	23	26	29	127
Same quarter last year	27	31	28	36	-
Financial year 2004 - 05	31	46	29	39	-
% change from previous week	▲9%	▲37%	▲25%	▲32%	▲17%
% change from same quarter last year	▼25%	▲1%	▲16%	▲4%	-
% change from 2003 - 04	▼1%	▲24%	▲7%	0%	-

Figure 3: volatility index during peak periods

	QLD	NSW	VIC	SA	TAS
Last week	0.61	1.04	0.93	0.87	0.24
Previous week	0.52	0.63	0.59	0.57	0.23
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

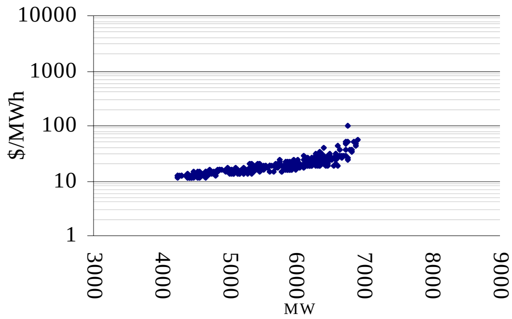


Figure 5: New South Wales

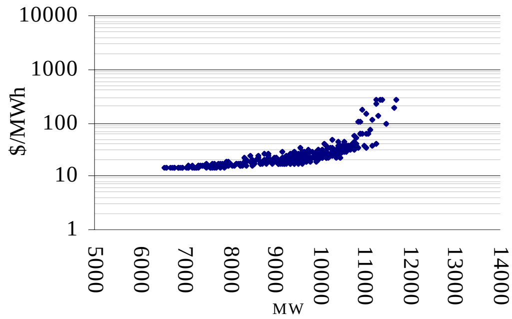


Figure 6: Victoria

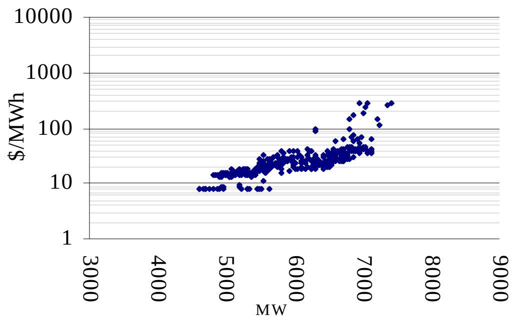


Figure 7: South Australia

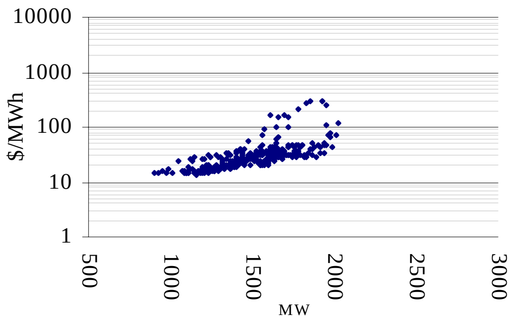
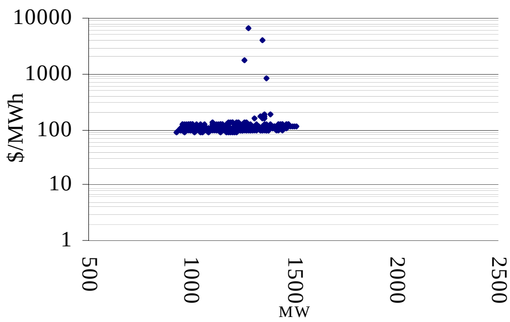


Figure 8: Tasmania



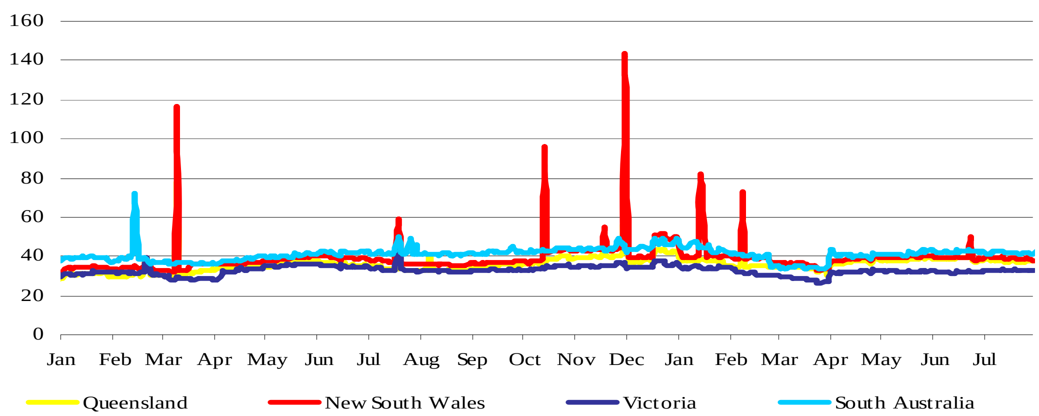
Spot prices peaked at $6,411/MWh in Tasmania on Wednesday evening. This followed the reclassification of the network due to lightning. Maximum spot prices in New South Wales, Victoria and South Australia were around $300/MWh late in the week while in Queensland a maximum spot price of almost $100/MWh occurred on Monday.

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	38.11	38.23	37.99	37.90	37.74
New South Wales	38.06	38.58	38.33	37.95	37.99
Victoria	32.95	32.74	32.56	33.64	32.59
South Australia	42.80	40.39	41.72	42.64	41.77

Figure 10: d-cyphaTrade WEPI



Spot prices greater than $5,000/MWh

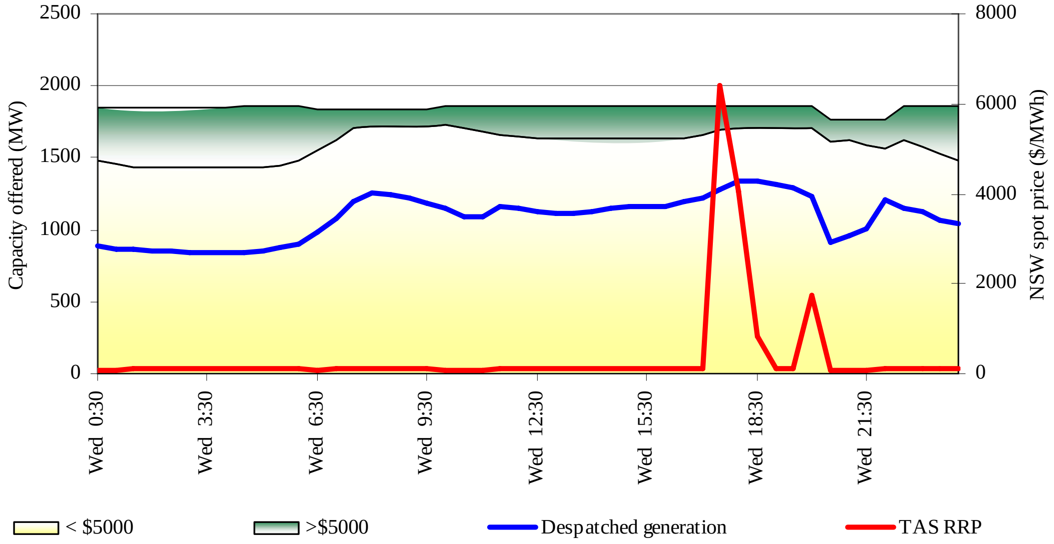
There was one occasion in Tasmania where the spot price was greater than $5,000/MWh. This occurred at 5.30pm on Wednesday. The table below identifies the generating units involved in setting the energy price.

Wednesday 3 August – Tasmania price setters for 5.30pm

Time	Despatch price	Participant	Unit	Service	Offer price
17:05	$10,000	HYDROTAS	TRIBUTE	Lower reg	1.2
	(capped)		REECE1	Energy	89.4
			POAT220	Raise 5 min	1000
			POAT220	Raise 6 sec	1000
			MEADOWBK	Lower 6 sec	1.2
			MEADOWBK	Raise 5 min	1.2
			MEADOWBK	Raise 6 sec	1.2
			MEADOWBK	Energy	8000
			JBUTTERS	Lower 5 min	1.05
			JBUTTERS	Lower 6 sec	1.05
			JBUTTERS	Energy	95.5
17:10	$10,000	HYDROTAS	POAT220	Raise reg	1000
	(capped)		LEM_WIL	Raise reg	1000
			LEM_WIL	Raise 6 sec	1.2
			LEM_WIL	Energy	8000
			DEVILS_G	Raise 6 sec	1.2
			DEVILS_G	Energy	89.4
17:15	$10,000	HYDROTAS	TREVALLN	Raise 5 min	1.2
	(capped)		LI_WY_CA	Raise 5 min	1.2
			LI_WY_CA	Raise 6 sec	1.2
			LI_WY_CA	Energy	70.01
			LEM_WIL	Raise 6 sec	1.2
			LEM_WIL	Energy	8000
17:20	$352.24	HYDROTAS	POAT220	Raise 6 sec	1000
			DEVILS_G	Raise 6 sec	1.2
			DEVILS_G	Energy	89.4
17:25	$4,056.20	HYDROTAS	POAT110	Energy	4056.2
			REECE1	Raise 5 min	1.05
			POAT220	Energy	4056.2
			POAT110	Raise 5 min	1.05
			POAT110	Raise 60 sec	1.05
			JBUTTERS	Raise 60 sec	1.05
17:30	$4,056.20	HYDROTAS	POAT110	Energy	4056.2
			REECE1	Raise 5 min	1.05
			POAT220	Energy	4056.2
			POAT110	Raise 5 min	1.05
			POAT110	Raise 6 sec	1.05
			GORDON	Raise 6 sec	1.05
Spot price	$6,410.77				

The figure below presents, for Wednesday 3 August, the capacity offered by Hydro Tasmania at prices less than and greater than $5,000/MWh.

Hydro Tasmania closing bid prices, despatched generation and spot price for Wednesday 3 August



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

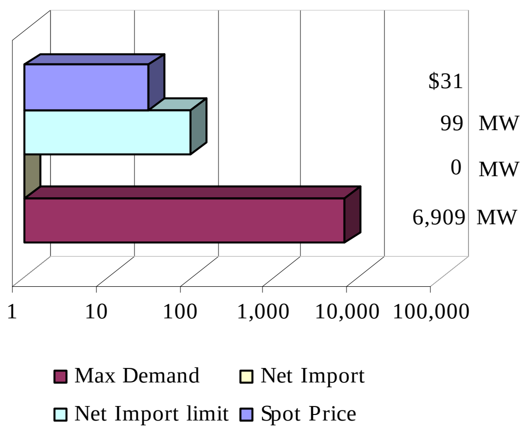


Figure 12: New South Wales

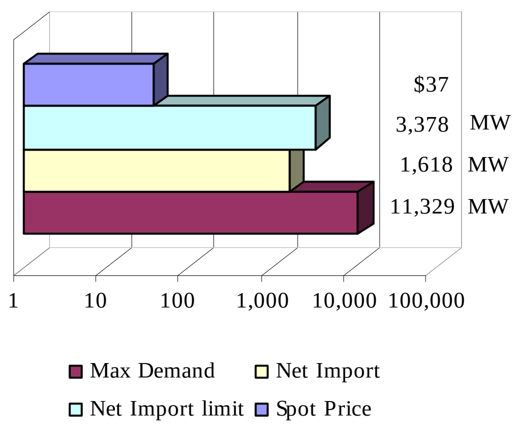


Figure 13: Victoria

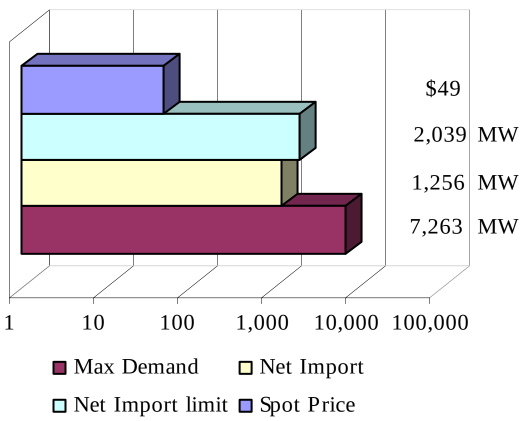
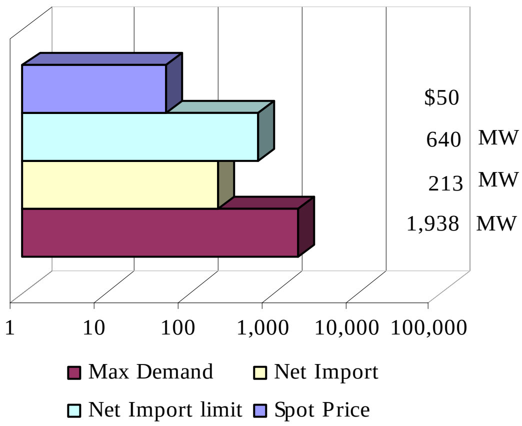


Figure 14: South Australia



In Tasmania, the demand reached a maximum of 1,515MW on Friday morning. The spot price at the time was $115/MWh.

Price variations

There were 83 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

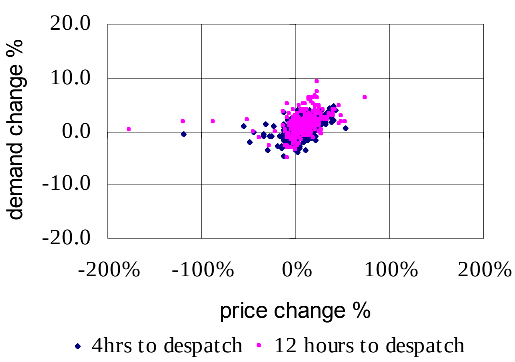


Figure 16: New South Wales

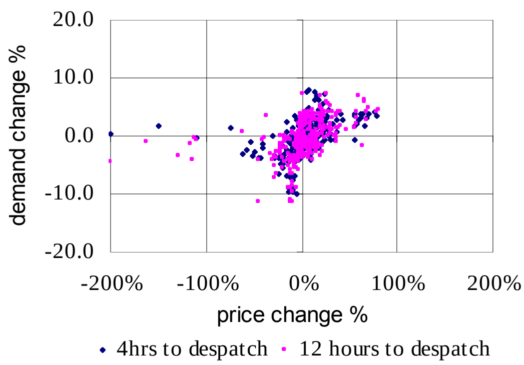


Figure 17: Victoria

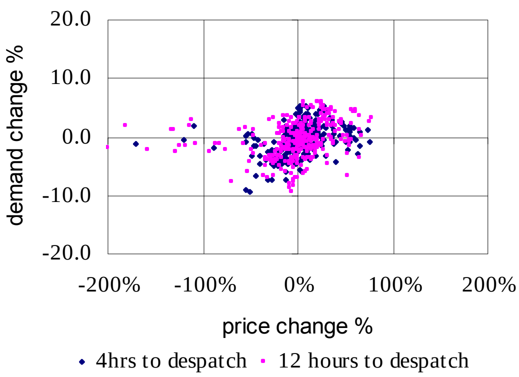


Figure 18: South Australia

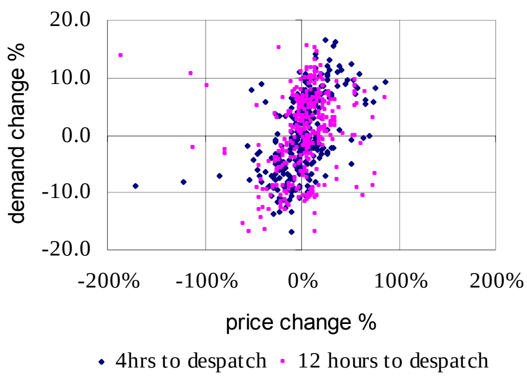


Figure 19: Tasmania

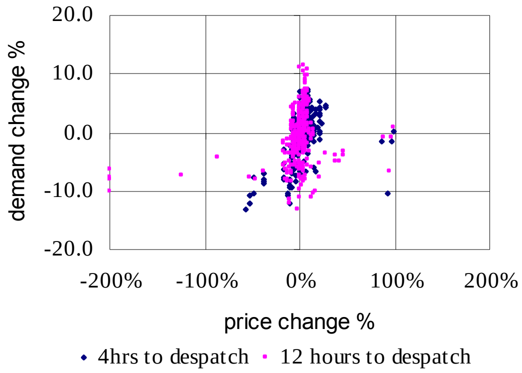
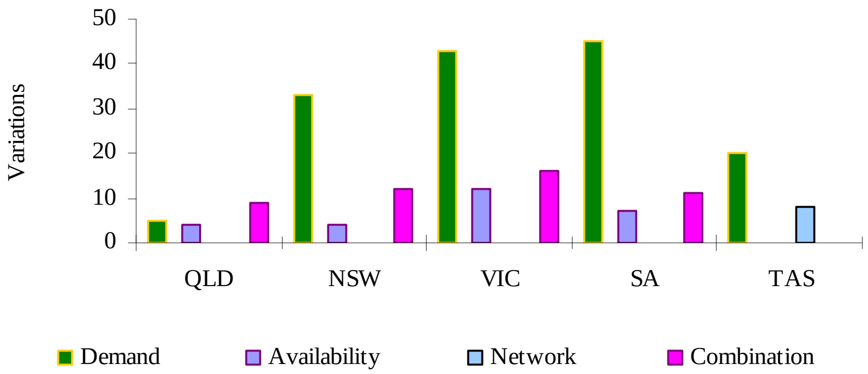


Figure 20 summarises the number and most probable reason for variations between forecast and actual prices.

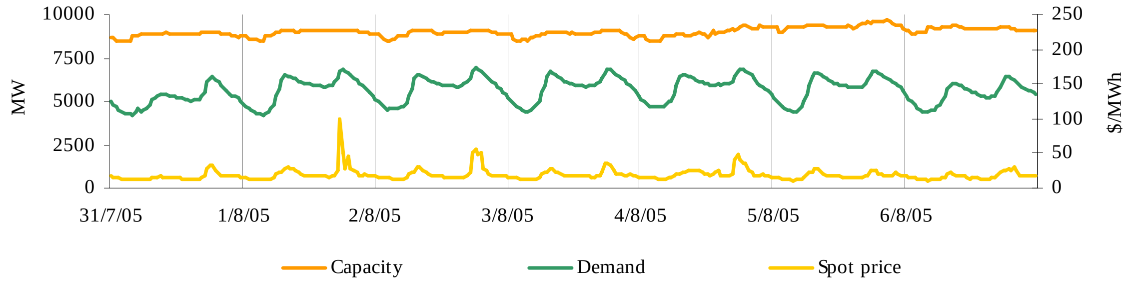
Figure 20: reasons for variations between forecast and actual prices

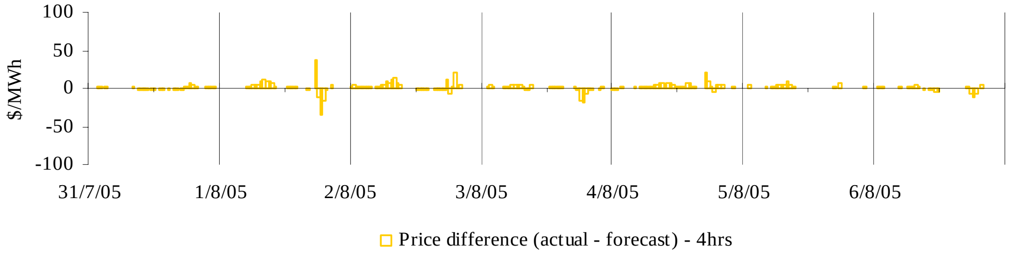


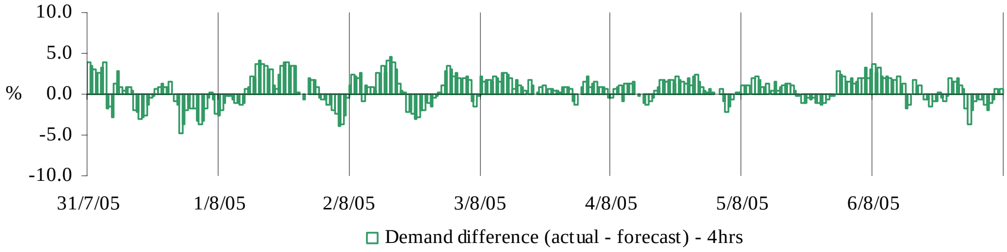
Price and demand

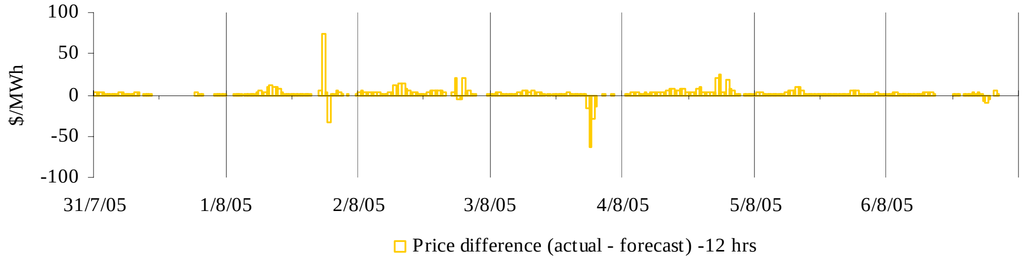
Figures 21 - 50 set out details of spot prices and demand on a regional basis. They include the actual spot price and demand outcomes and difference graphs both four and twelve hours ahead of despatch on a daily basis. The differences between the maximum temperature and the temperature forecast at around 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.

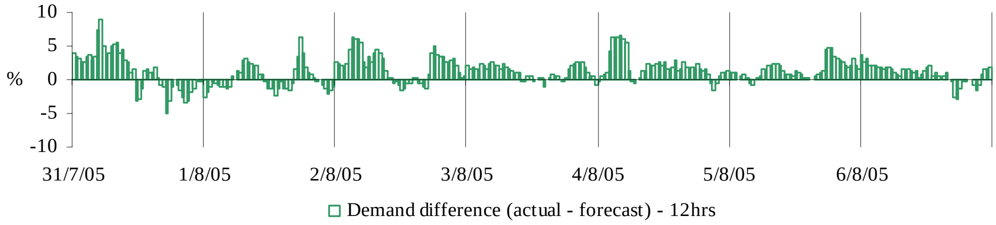
Figures 21-26: Queensland actual spot price, demand and forecast differences

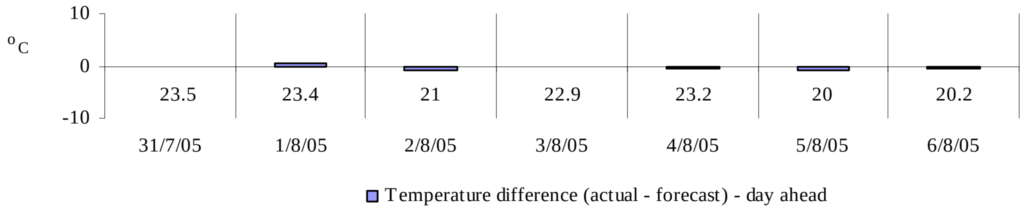












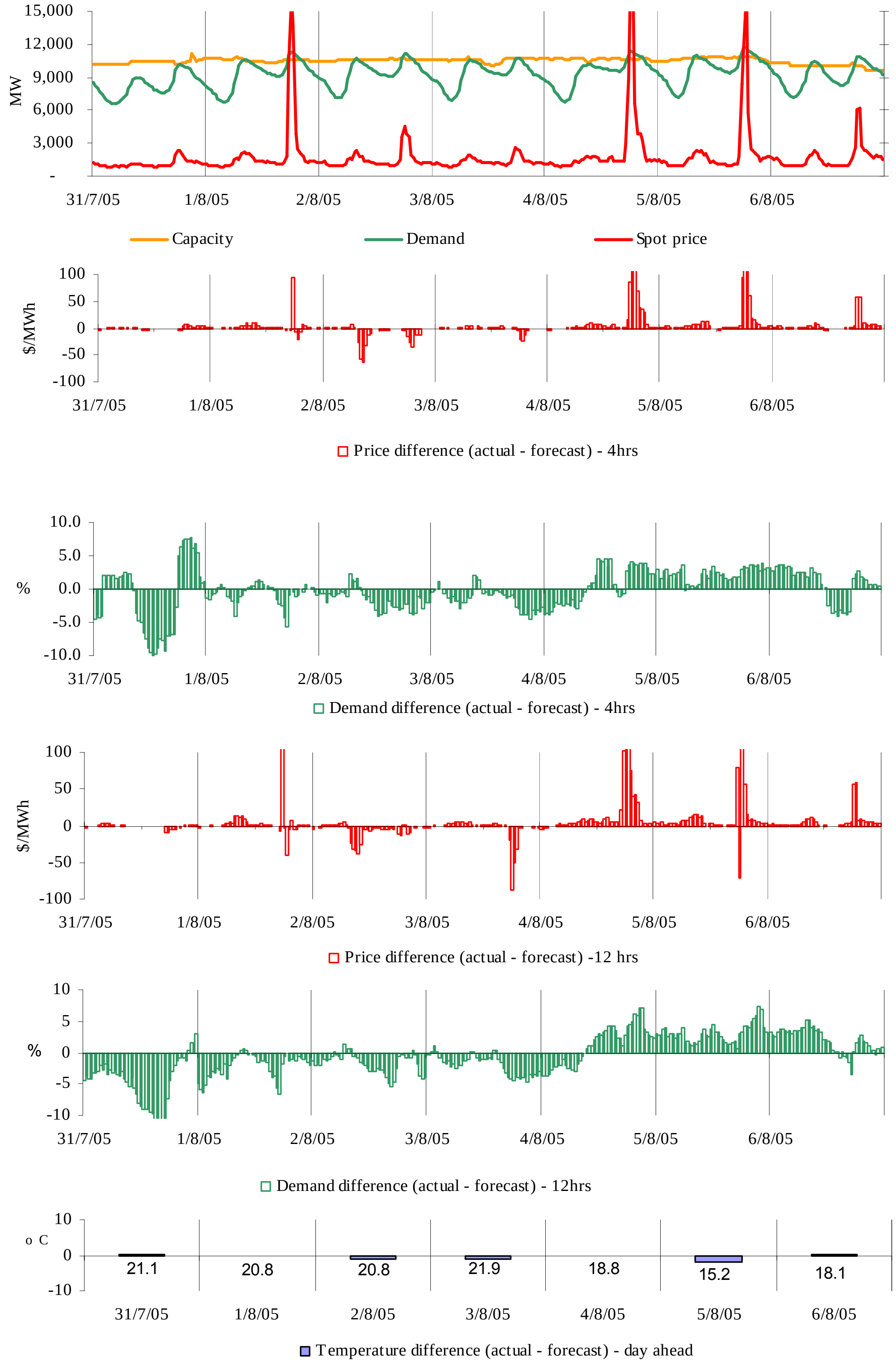
There was one occasion in Queensland where the spot price was greater than three times the weekly average price of $20/MWh. This occurred at 6pm on Monday.

Monday, 1 August

6:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	99.80	62.64	25.30
Demand (MW)	6,755	6,645	6,337
Available capacity (MW)	9,122	9,086	9,126

Conditions at the time saw demand around 100MW higher than the four hour ahead forecast and around 400MW higher than the 12 hour ahead forecast. Flows south along the New South Wales to Queensland interconnector were largely as forecast and at the limit of around 1,050MW by the end of the trading interval. At 4.02pm and 4.22pm, Origin Energy committed both Roma units, bidding a total of 72MW to prices around zero. The rebid reason given was “EST (N) CHANGE IN PDS”. There was no other significant rebidding.

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



There were 13 occasions in New South Wales where the spot price was greater than three times the weekly average price of $32/MWh. These occurred during the evening peak on Monday, Thursday, Friday and Saturday.

Monday, 1 August

6:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	168.25	74.46	60.99
Demand (MW)	10,949	11,040	11,153
Available capacity (MW)	10,534	10,494	11,427
6:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	271.00	276.77	274.45
Demand (MW)	11,265	11,259	11,341
Available capacity (MW)	10,567	10,494	11,427
7:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	232.57	254.19	272.89
Demand (MW)	11,231	11,274	11,234
Available capacity (MW)	10,584	10,494	11,427

Conditions at the time saw price and demand close to forecast. Prices were aligned across the southern mainland regions. At 4.05pm, Macquarie Generation rebid around 420MW of capacity from prices of less than $15/MWh to prices above $250/MWh. The rebid reason given was "RP/Volume tradeoff – load expected to vary from forecast". Delta Electricity reduced the available capacity across its Vales Point units by a total of 690MW at 8am, with further rebids during the course of the day. The rebid reasons given were "Emission limit:: Capacity limit change" and "Dust emission:: Capacity limit change". There was no other significant rebidding.

Thursday, 4 August

6:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	146.92	60.04	45.49
Demand (MW)	11,027	10,735	10,724
Available capacity (MW)	10,619	10,749	10,809
6:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	273.64	83.96	60.28
Demand (MW)	11,365	10,953	10,883
Available capacity (MW)	10,667	10,769	10,859
7:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	268.60	63.12	54.43
Demand (MW)	11,332	10,875	10,817
Available capacity (MW)	10,589	10,769	10,859
7:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	109.25	39.21	33.55
Demand (MW)	11,171	10,746	10,632
Available capacity (MW)	10,569	10,769	10,859

Conditions at the time saw demand as much as 450MW higher than the four hour ahead forecast, with prices aligned across the southern regions. At 4.58pm, Macquarie Generation rebid 400MW from prices of less than $15/MWh to prices of $250/MWh. The rebid reason given was 'RRP/Volume Tradeoff – load expected to vary from forecast". Gas turbines at Valley Power in Victoria and Hallet in South Australia were committed. There was no other significant rebidding.

Friday, 5 August

6:00 pm	Actual	4 hr forecast	12 hr forecast
Price ($/MWh)	140.15	46.68	60.28
Demand (MW)	11,305	11,108	10,954
Available capacity (MW)	10,862	10,944	10,924
6:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	192.68	61.36	263.12
Demand (MW)	11,654	11,306	11,263
Available capacity (MW)	10,862	10,929	10,924
7:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	278.97	61.42	87.36
Demand (MW)	11,688	11,285	11,198
Available capacity (MW)	10,859	10,929	10,924
7:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	97.06	36.67	40.47
Demand (MW)	11,457	11,102	10,986
Available capacity (MW)	10,852	10,929	10,924

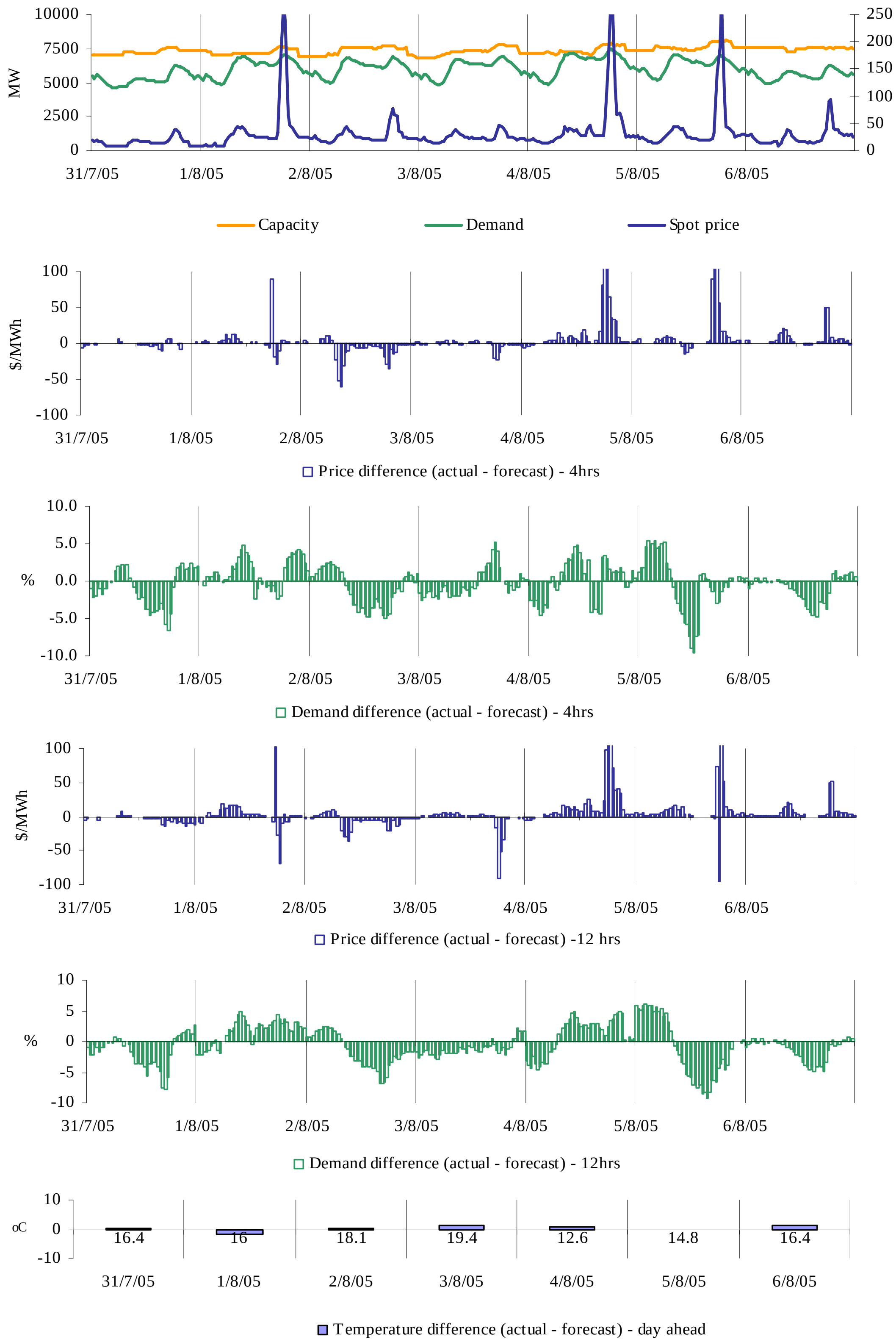
Conditions at the time saw demand as much as 400MW higher than the four hour ahead forecast. Although prices were higher than the four hour ahead forecast, high prices had been forecast at times earlier in the day. Prices were aligned across the southern regions. At 5.24pm, Macquarie Generation rebid 330MW of capacity from prices of $15/MWh to prices around $100/MWh. The rebid reason given was ‘RP/Volume tradeoff – NEMMCO load forecast increase”. As much as 360MW of capacity was rebid by Eraring Energy from prices of less than $30/MWh to prices above $8,000/MWh, over two rebids at 5.22pm and 5.30pm. The rebid reasons given was “P:Bid rearrangement (ER01 plant issues)”. As a result of these rebids unit 1 at Eraring was despatched to half load. Gas turbines at Valley Power in Victoria and Dry Creek in South Australia were committed. There was no other significant rebidding.

Saturday, 6 August

6:30 pm	Actual	4 hr forecast	12 hr forecast
Price ($/MWh)	101.82	44.96	44.38
Demand (MW)	10912	10735	10749
Available capacity (MW)	10035	10365	10383
7:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	102.63	44.19	44.15
Demand (MW)	10873	10631	10632
Available capacity (MW)	10035	10375	10383

Conditions at the time saw demand as much as 250MW higher than forecast, with prices aligned across the southern regions. At 5.56pm, Eraring Energy rebid 200MW from prices around $9,000/MWh to prices of $30/MWh across units 3 and 4. At the same time Eraring Energy reduced the availability of unit 2 by 350MW. Most of this capacity was priced at less than $30/MWh. The rebid reason given was “Bid rearrangement due to unit 2 limit” and “Feed pump capacity”. There was no other significant rebidding.

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



There were 11 occasions in Victoria where the spot price was greater than three times the weekly average price of $33/MWh. These occurred during the evening peak on Monday, Thursday and Friday.

Monday, 1 August

6:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	169.63	79.90	66.39
Demand (MW)	6,858	6,999	6,564
Available capacity (MW)	7,670	7,668	7,198
6:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	274.87	293.92	302.84
Demand (MW)	7,077	7,081	6,817
Available capacity (MW)	7,632	7,668	7,198
7:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	235.85	265.09	304.35
Demand (MW)	7,038	6,906	6,825
Available capacity (MW)	7,664	7,653	7,183

Conditions at the time saw demand close to forecast, with prices aligned across the southern regions. During the 6pm trading interval, International Power rebid around 300W of capacity at Valley Power to prices of zero, committing those units. Most of this capacity was priced had been priced at $100/MWh and was forecast to be despatched. The rebid reason given was "Change in price forecasts". There was no other significant rebidding.

Thursday, 4 August

6:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	148.11	67.37	49.90
Demand (MW)	7,219	7,097	7,142
Available capacity (MW)	7,835	7,737	8,047
6:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	278.47	96.63	66.94
Demand (MW)	7,431	7,356	7,251
Available capacity (MW)	7,846	7,747	8,042
7:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	270.51	73.39	60.34
Demand (MW)	7,358	7,274	7,108
Available capacity (MW)	7,858	7,787	8,032
7:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	110.88	46.00	38.80
Demand (MW)	7,245	7,145	6,973
Available capacity (MW)	7,744	7,727	7,882

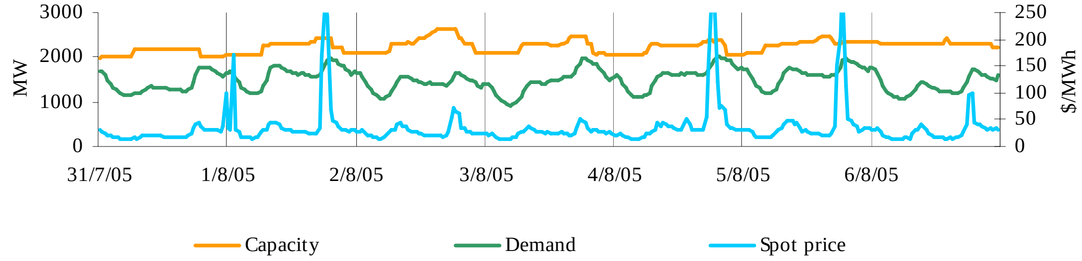
Conditions at the time saw demand around 100MW higher than forecast, with prices aligned across the southern regions. Around 350MW of capacity was committed from around 3.30pm at Bairnsdale and Valley Power. There was no other significant rebidding.

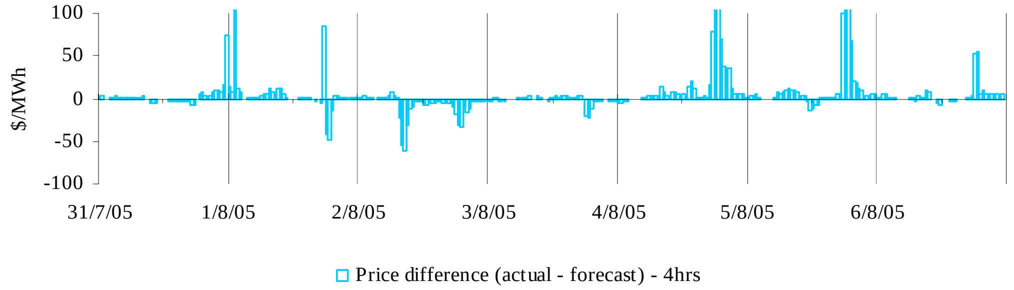
Friday, 5 August

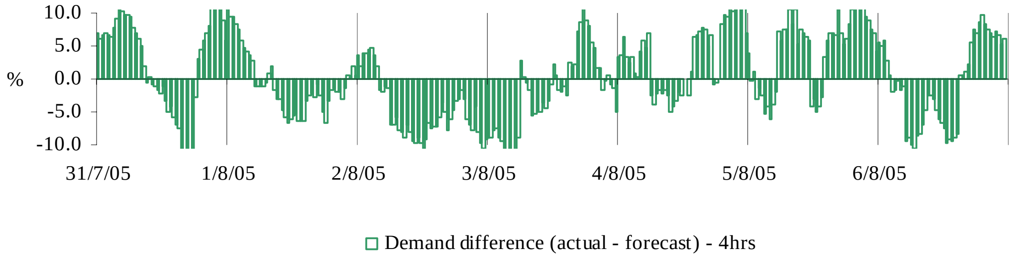
6:00 pm	Actual	4 hr forecast	12 hr forecast
Price ($/MWh)	139.38	49.90	66.66
Demand (MW)	6,811	7,005	7,261
Available capacity (MW)	8,064	8,074	7,589
6:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	190.05	65.66	286.57
Demand (MW)	7,005	7,108	7,306
Available capacity (MW)	7,983	8,079	7,569
7:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	276.10	65.65	96.63
Demand (MW)	6,943	6,997	7,203
Available capacity (MW)	7,947	8,074	7,562
7:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	98.02	40.90	45.41
Demand (MW)	6,819	6,837	7,011
Available capacity (MW)	8,040	8,074	8,072

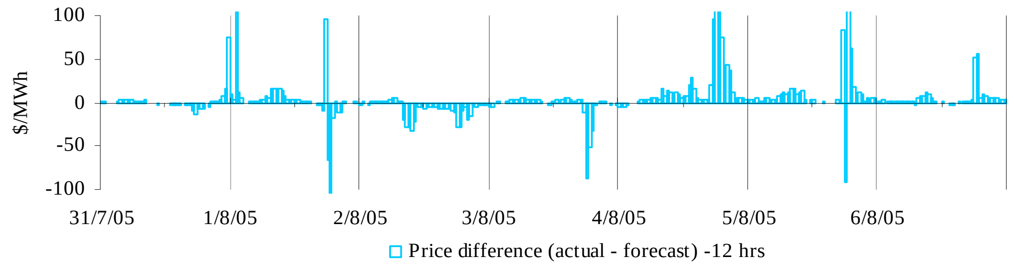
Conditions at the time saw demand as much as 200MW lower than forecast at the beginning of this period, with prices aligned across the southern regions. Alinta and International Power rebid around 340MW of capacity from prices of $400/MWh or higher to prices below $25/MWh committing generation Bairnsdale and Valley Power. TRU Energy reduced the availability at Yallourn by 120MW during this period. All of this capacity had been priced at less than $5/MWh. The rebid reason given was ‘P Coal conservation::reduced availability’. There was no other significant rebidding.

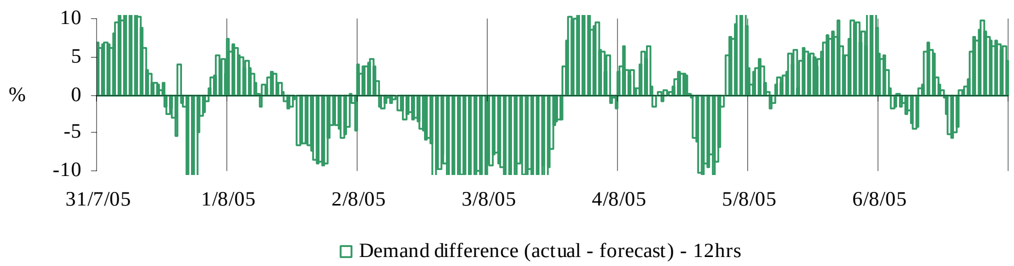
Figures 39-44: South Australia actual spot price, demand and forecast differences

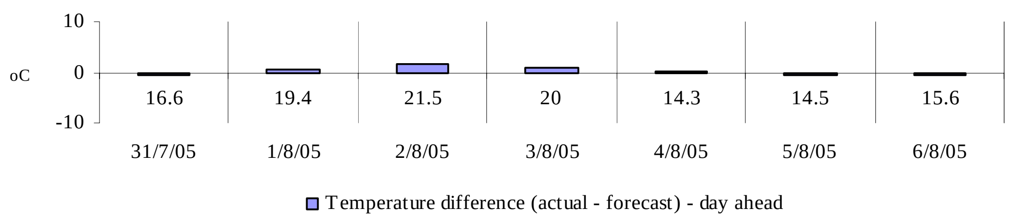












There were 11 occasions in South Australia where the spot price was greater than three times the weekly average price of $38/MWh. These occurred at 1.30am and between 6pm and 7pm on Monday, and during the evening peak on Thursday and Friday.

Monday, 1 August

1:30 am	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	170.14	21.33	23.43
Demand (MW)	1,612	1,461	1,506
Available capacity (MW)	2,049	2,012	2,012

Conditions at the time saw demand around 150MW higher than the four hour ahead forecast. A rapid change in the limit on Victorian exports, from 1.05am, saw a reduction in flows of around 300MW into South Australia across both the Heywood and MurrayLink interconnectors over the trading interval. From 12.48am, TRU Energy rebid a total 147MW of capacity at Torrens Island from prices of $30/MWh and $300/MWh to the price floor. The rebid reason given was ‘Market conditions – Gen response to PD conditions” and “Settlement 5min/30min”. There was no other significant rebidding.

Monday, 1 August

6:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	167.41	82.79	72.36
Demand (MW)	1,694	1,777	1,850
Available capacity (MW)	2,420	2,420	2,295
6:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	274.49	315.48	340.43
Demand (MW)	1,833	1,957	1,997
Available capacity (MW)	2,420	2,420	2,295
7:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	243.83	291.80	349.28
Demand (MW)	1,948	2,016	2,056
Available capacity (MW)	2,420	2,420	2,295

Conditions at the time saw demand lower than the forecast four hours to despatch, with prices aligned across the southern regions. From around 4pm, Origin Energy and AGL committed 150MW of capacity at Quarantine and Hallet respectively as a result of forecast prices. There was no other significant rebidding.

Thursday, 4 August

6:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	151.14	72.07	55.31
Demand (MW)	1,724	1,738	1,904
Available capacity (MW)	2,364	2,360	2,295
6:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	293.08	107.21	76.95
Demand (MW)	1,849	1,858	2,014
Available capacity (MW)	2,365	2,360	2,295

Continued over page.

7:00 pm	Actual	4 hr forecast	12 hr forecast
Price ($/MWh)	287.44	83.44	70.42
Demand (MW)	1,933	1,933	2,066
Available capacity (MW)	2,357	2,360	2,295
7:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	121.10	51.01	45.51
Demand (MW)	2,020	1,853	2,051
Available capacity (MW)	2,365	2,177	2,112

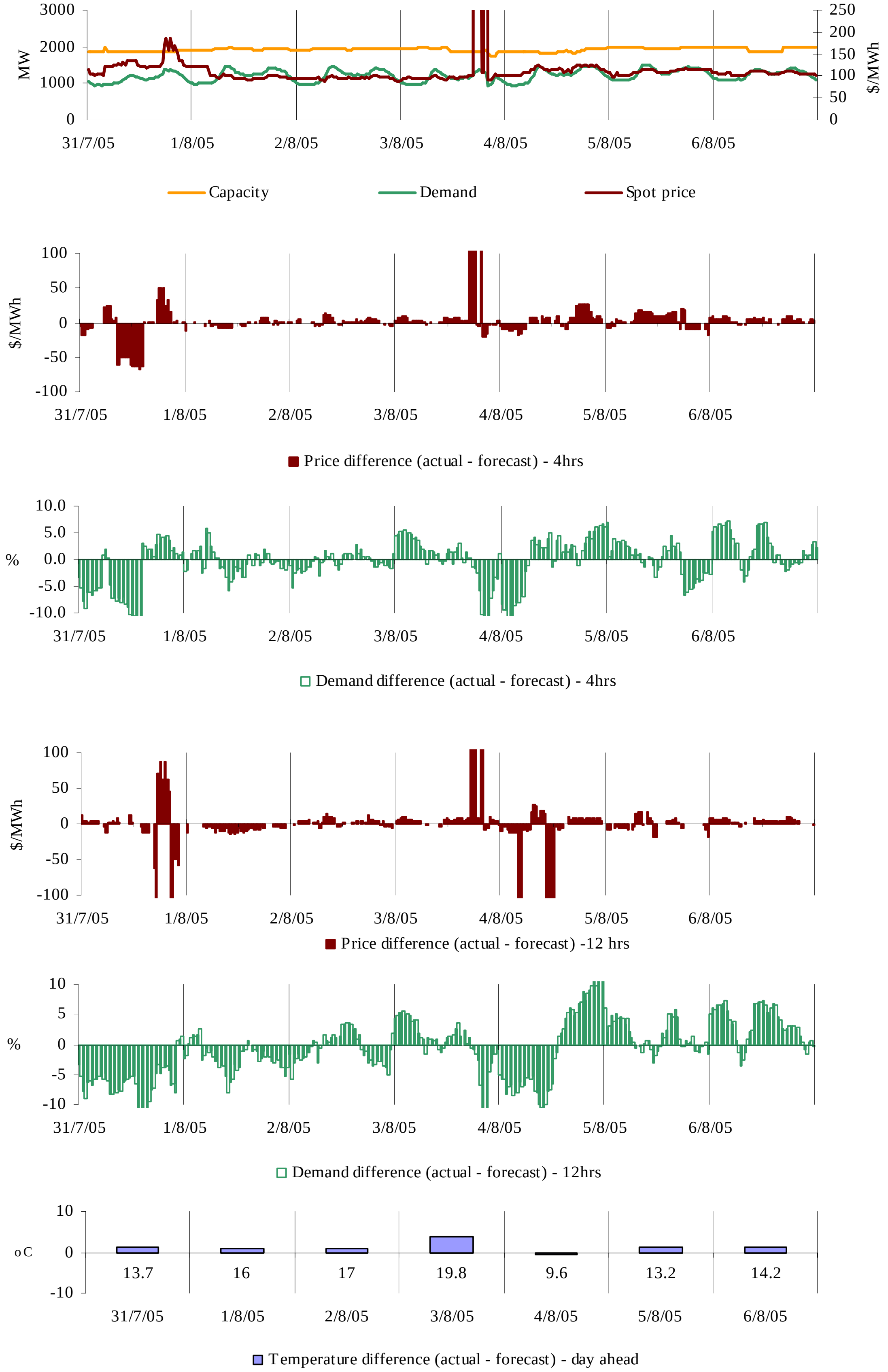
Conditions at the time saw demand close to forecast with prices aligned across the southern regions. Origin Energy and AGL committed 200MW of capacity at Quarantine and Hallet respectively. TRU Energy rebid 120MW of capacity at Torrens Island from prices of $300/MWh to prices of $55/MWh for the 6pm trading interval. The rebid reasons given was "Fuel limits-redist MW (comply with fuel profile" and "Market conditions – gen response to pd conditions". There was no other significant rebidding.

Friday, 5 August

6:00 pm	Actual	4 hr forecast	12 hr forecast
Price ($/MWh)	150.08	51.01	67.84
Demand (MW)	1,654	1,566	1,570
Available capacity (MW)	2,320	2,445	2,295
6:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	206.37	68.48	299.00
Demand (MW)	1,782	1,675	1,692
Available capacity (MW)	2,300	2,445	2,295
7:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	302.24	70.57	105.01
Demand (MW)	1,922	1,762	1,780
Available capacity (MW)	2,333	2,445	2,295

Conditions at the time saw demand as much as 150MW higher than forecast 4 hours to despatch, with prices aligned across the southern regions. At 4.04pm, TRU energy rebid 40MW of capacity at Torrens Island from prices of less than zero to $300/MWh. The rebid reason given was "Market conditions-Gen response to PD conditions". At 4.56pm, TRU Energy decommitted unit A3, reducing its availability by 120MW. There was 50MW of this capacity priced at less than zero. There was no other significant rebidding.

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



There were 4 occasions in Tasmania where the spot price was greater than three times the weekly average price of $149/MWh. These occurred between 5.30pm and 8pm on Wednesday.

Wednesday, 3 August

5:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	6410.77	104.20	95.49
Demand (MW)	1,283	1,280	1,270
Available capacity (MW)	1,871	1,861	1,981
6:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	4056.20	109.64	99.80
Demand (MW)	1,347	1,367	1,357
Available capacity (MW)	1,881	1,861	1,981
6:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	851.92	112.50	99.95
Demand (MW)	1,365	1,387	1,377
Available capacity (MW)	1,881	1,861	1,981
8:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	1753.50	112.50	99.80
Demand (MW)	1,262	1,392	1,347
Available capacity (MW)	1,894	1,861	1,961

At 4.40pm, Transend notified NEMMCO of lightning in the vicinity of the double circuit Farrell to Sheffield 220kV lines and that the loss of both lines was a credible contingency event. NEMMCO invoked constraints to manage this reclassification from 4.55pm. As much as 200MW was constrained off at John Butters, Mackintosh, Reece, Tribute and Bastyan. As a result the price increased to $10,000/MWh between 5.05pm and 5.15pm and was above $4,000/MWh for all but one despatch interval until 6.05pm. The reclassification ceased at 7.25pm.

At 7.53pm, lightning led to the loss of two Sheffield to Georgetown 220kV lines – a non-credible contingency event. The lines were returned to service at 7.57pm. Demand fell by around 400MW following the loss of some industrial load. At the same time generation reduced by around 120MW. Investigations are continuing into this event.

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

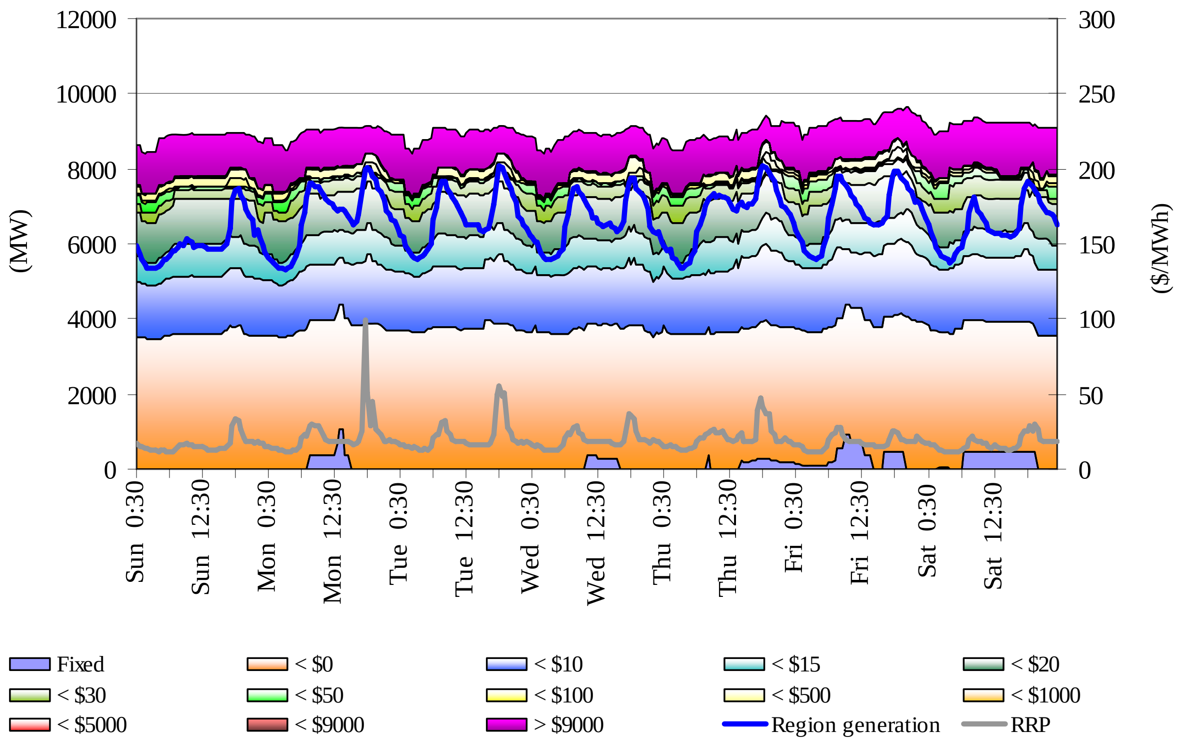


Figure 52: New South Wales closing bid prices, despatched generation and spot price

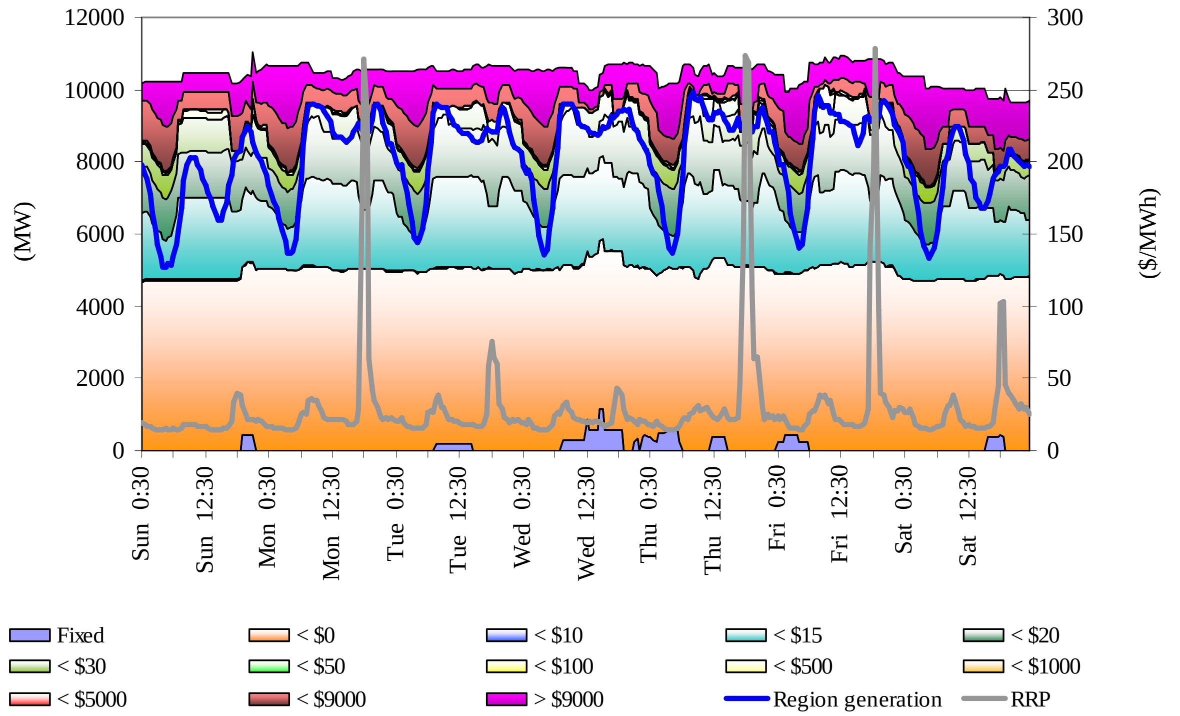


Figure 53: Victoria closing bid prices, despatched generation and spot price

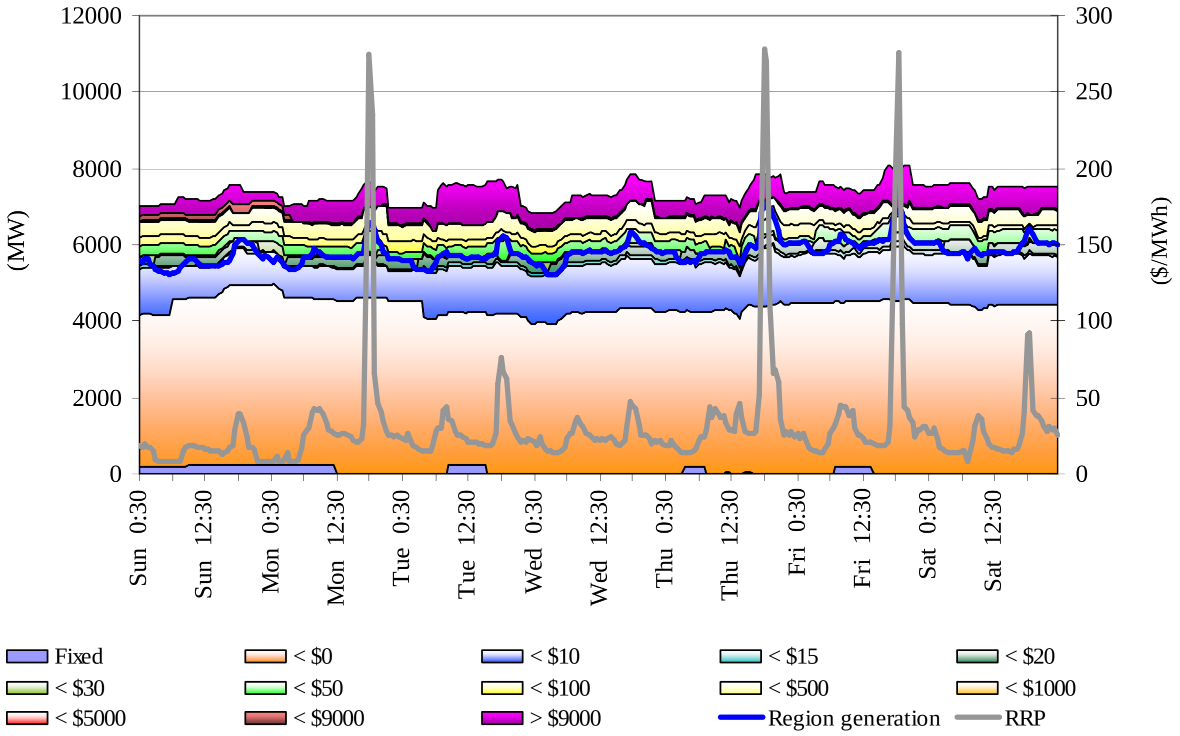


Figure 54: South Australia closing bid prices, despatched generation and spot price

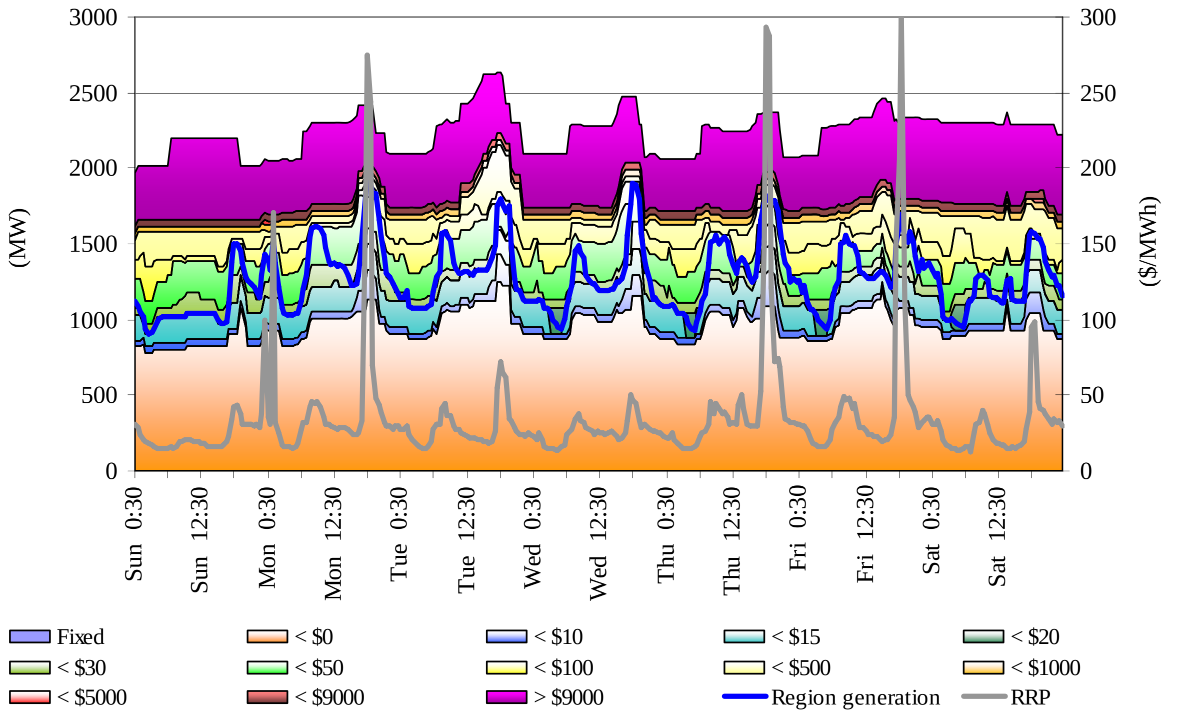
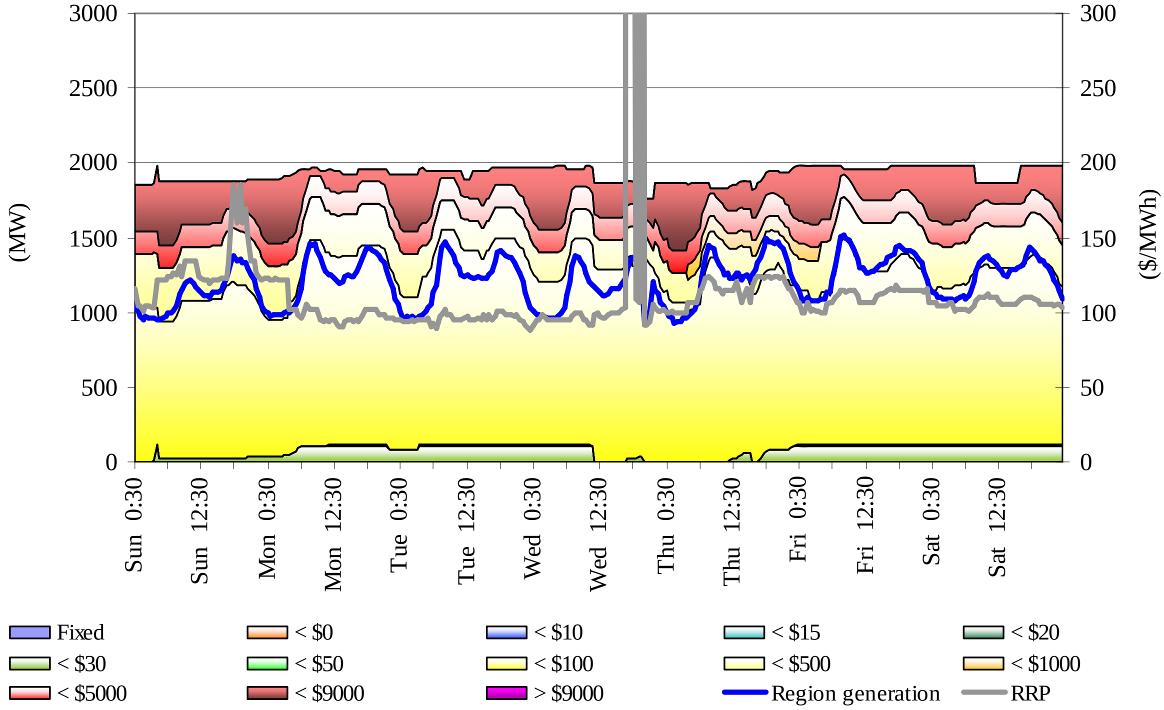


Figure 55: Tasmania closing bid prices, despatched generation and spot price



Ancillary service market

The total cost of ancillary services for the week more than doubled to $1.6 million or 1.2 per cent of the total turnover in the energy market. Around $1.2million of that cost was the result of the events in Tasmania on Wednesday. Figure 56 summarises the volume weighted average prices and costs for the eight frequency control ancillary services across the interconnected regions. Figure 57 summarises the volume weighted average prices and costs for the eight frequency control ancillary services for Tasmania.

Figure 56: volume weighted average frequency control ancillary service prices

	Raise 6 sec	Raise 60 sec	Raise 5 min	Raise reg	Lower 6 sec	Lower 60 sec	Lower 5 min	Lower reg
Last week ($)	1.09	0.75	0.92	1.49	0.16	0.15	1.18	1.43
Previous week($)	1.47	0.77	0.91	1.67	0.16	1.09	6.71	1.84
Last Quarter($)	2.43	0.81	0.99	1.07	0.23	0.96	2.96	1.51
Market Cost ($1000s)	$56	$38	$63	$33	$1	$1	$27	$32
% of energy market	0.05%	0.03%	0.06%	0.03%	0.00%	0.00%	0.02%	0.03%

Figure 57: volume weighted average frequency control ancillary service price 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 ($)	126.84	1.05	2.20	4.53	2.72	1.05	1.05	2.57
Previous week($)	1.21	1.05	1.05	1.14	1.72	1.05	1.05	1.11
Market Cost ($1000s)	$1,177	$10	$23	$38	$35	$31	$26	$22
% of energy market	3.89%	0.03%	0.08%	0.13%	0.11%	0.10%	0.08%	0.07%

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

Figure 58: daily frequency control ancillary service costs

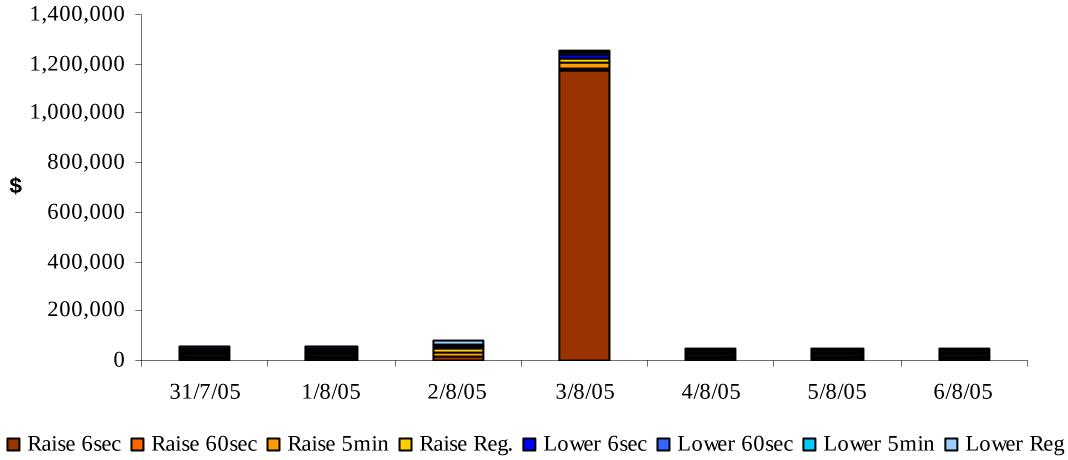
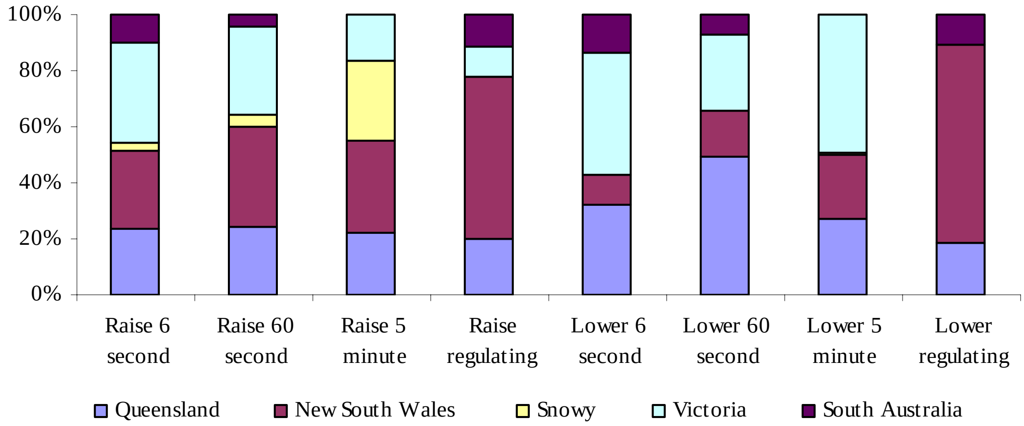


Figure 59 shows the regional weekly participation in each of the ancillary service markets on the mainland.

Figure 59: regional participation in ancillary services



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

Figure 60: prices for raise services

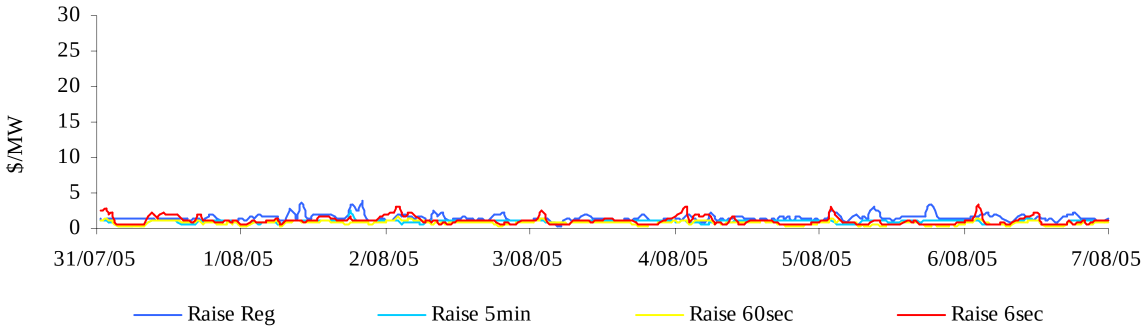


Figure 60A: prices for raise services - Tasmania

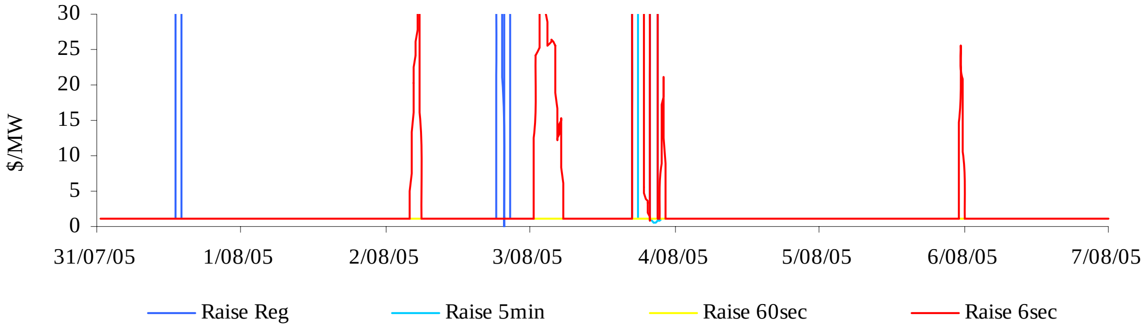


Figure 61: prices for lower services

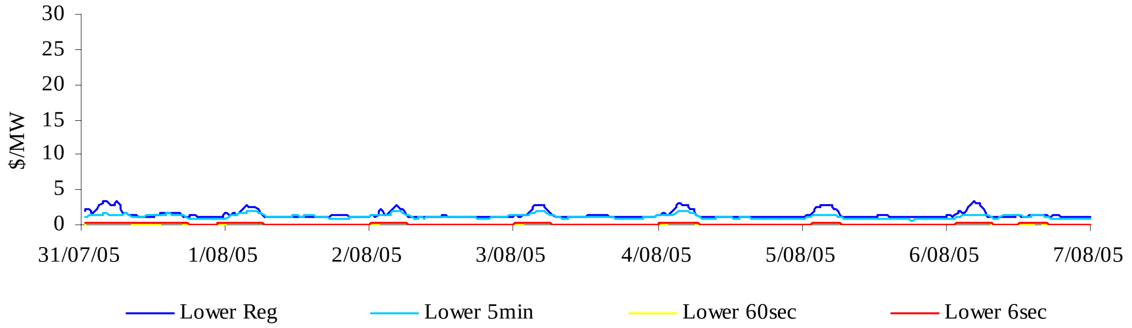
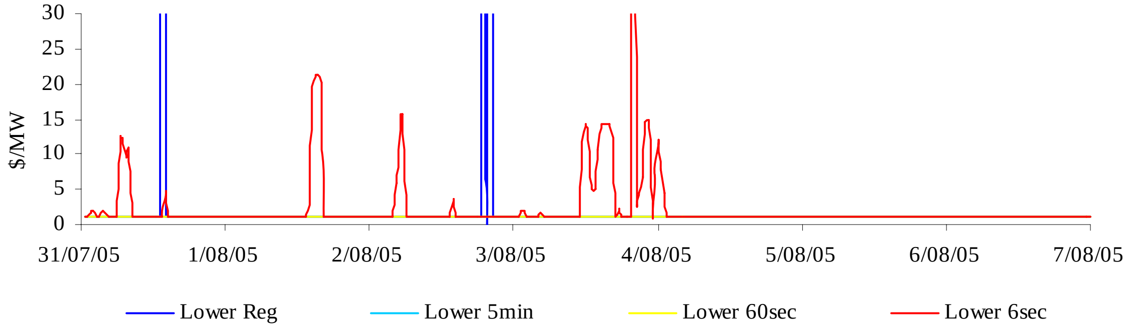


Figure 61A: prices for lower services - Tasmania



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

Figure 62: raise requirements

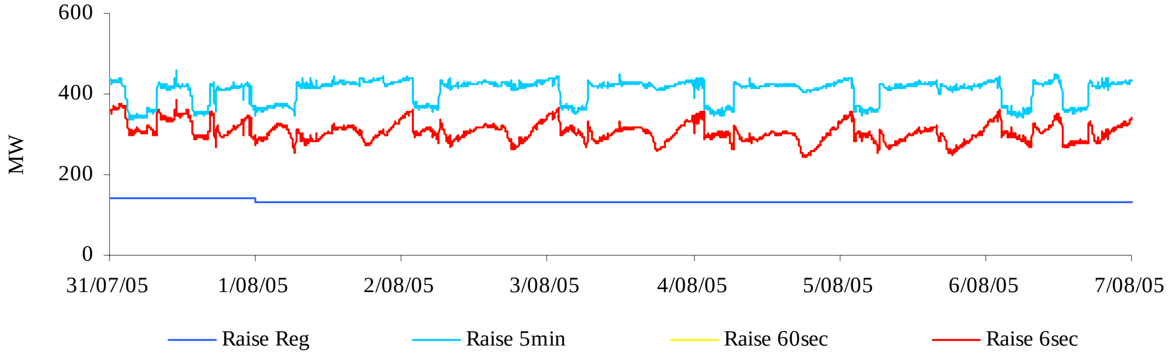


Figure 62A: raise requirements - Tasmania

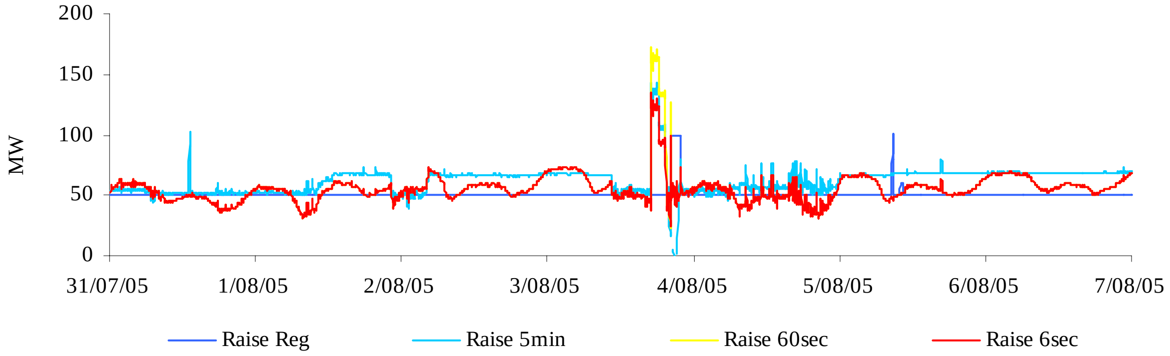


Figure 63: lower requirements

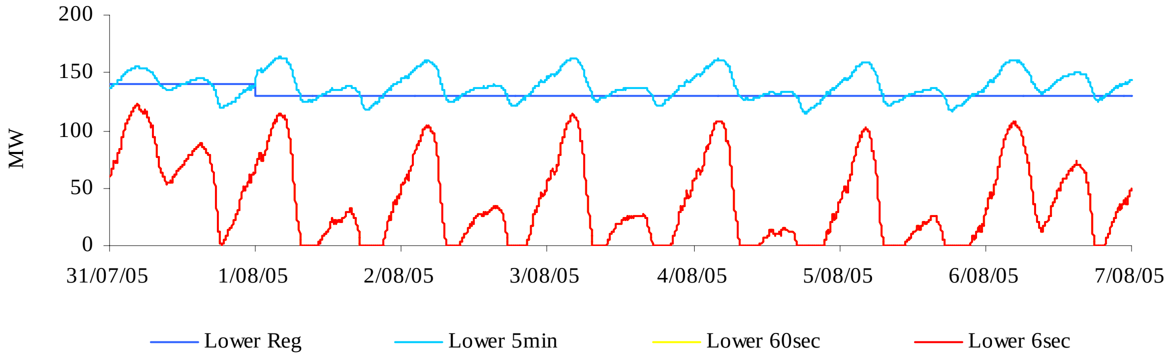


Figure 63A: lower requirements - Tasmania