Market analysis

AUSTRALIAN ENERGY REGULATOR

28 January–3 February 2007

Spot prices for the week averaged between $37/MWh in Victoria and $64/MWh in Queensland. On Monday a new record demand of almost 8400 MW occurred in Queensland.

Turnover in the energy market was $192 million. The total cost of ancillary services for the week was $251 000, or 0.1 per cent of energy market turnover.

Significant variations between actual prices and those forecast 4 and 12 hours ahead occurred in 162 or almost a half of all trading intervals. Demand forecasts produced 4 and 12 hours ahead varied from actual by more than 5 per cent in around a quarter all trading intervals across the market. These variations were most frequent in South Australia, occurring in almost a half of all trading intervals.

Energy prices

Figure 1 sets out the 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 previous financial year.

Figure 1: national demand and spot prices

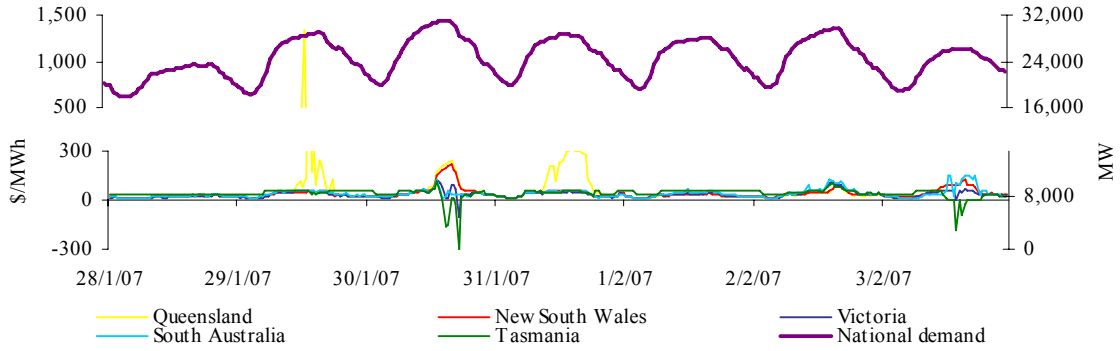


Figure 2: volume weighted average spot price for energy market ($/MWh)

	QLD	NSW	VIC	SA	TAS
Last week	64	43	37	43	39
Previous week	149	63	50	40	49
Same quarter last year	39	46	53	58	33
Financial year to date	34	38	45	49	40
% change from previous week *	▼57%	▼32%	▼26%	▲9%	▼21%
% change from same quarter last year **	▲66%	▼6%	▼31%	▼25%	▲18%
% change from year to date ***	▼7%	▼31%	▲26%	▼1%	▼47%

*The percentage change between last week's average spot price and the average price for the previous week.
**The percentage change between last week's average spot price and the average price for the same quarter last year.
***The percentage change between the average spot price for the current financial year to date and the average spot price over the similar period for the previous financial year.

Figures 3 to 7 show the weekly correlation between spot price and demand.

Figure 3: Queensland

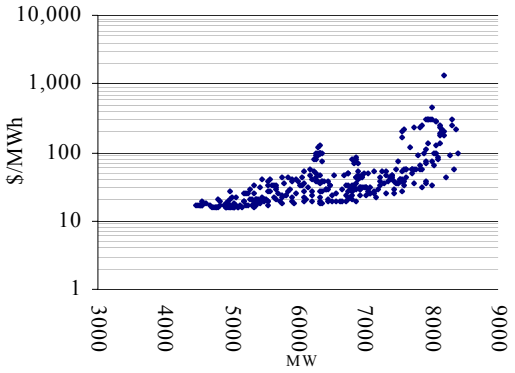


Figure 4: New South Wales

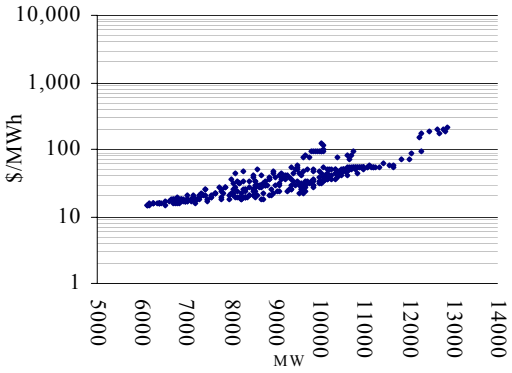


Figure 5: Victoria

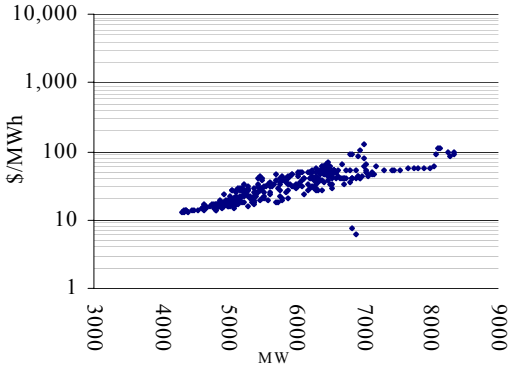


Figure 6: South Australia

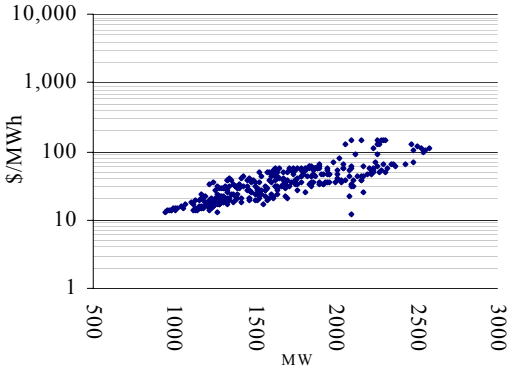
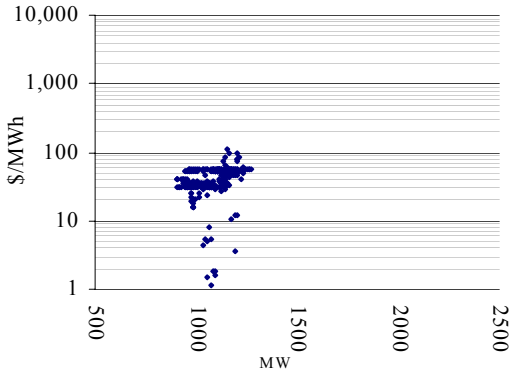


Figure 7: Tasmania



The maximum spot price for the week ranged from $114/MWh in Tasmania to $1332/MWh in Queensland, where high temperatures led to a record demand. On Tuesday and Saturday, spot prices of less than zero were recorded in Tasmania and Victoria, when constraints were introduced by NEMMCO to manage the accumulation of negative settlements on the Victoria to South Australia interconnector. Figure 8 compares the weekly price volatility index with the averages for the previous week and the same quarter last year.

Figure 8: volatility index during peak periods

	QLD	NSW	VIC	SA	TAS
Last week	4.02	0.71	0.70	0.66	0.39
Previous week	1.70	1.38	1.14	0.97	0.53
Same quarter last year	1.07	0.96	0.96	0.94	0.29

The definition of the price volatility index is available on the AER website.
http://www.aer.gov.au/content/index.phtml/tag/MarketSnapshotLongTermAnalysis

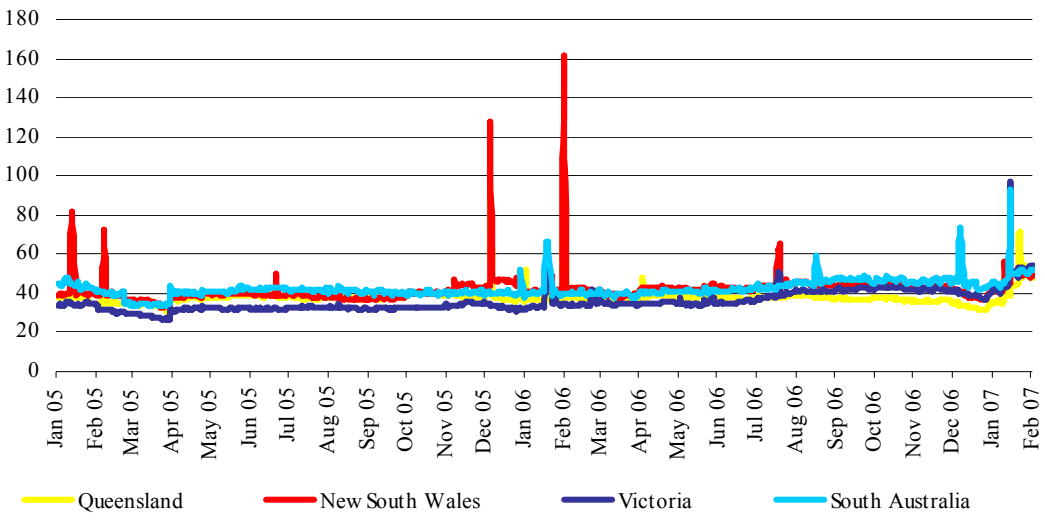
Figure 9 sets out the d-cyphaTrade wholesale electricity price index (WEPI)* for each region throughout the week excluding Tasmania. Figure 10 sets out the WEPI since 1 January 2005.

Figure 9: d-cyphaTrade WEPI for the week

	Monday	Tuesday	Wednesday	Thursday	Friday
Queensland	53.78	52.07	52.08	48.40	47.70
New South Wales	49.86	51.68	48.95	48.08	49.35
Victoria	52.21	52.86	52.18	53.97	54.35
South Australia	50.37	50.31	50.53	50.95	51.84

* The definition of the wholesale electricity price index is available on the d-cyphaTrade website
http://www.d-cyphatrade.com.au/products/wholesale_electricity_price_i
The WEPI applies for working days only.

Figure 10: d-cyphaTrade WEPI



Reserve

Low reserve conditions (LRC) were forecast for Queensland on Monday and Wednesday and for South Australia on Thursday and Friday.

Figures 11 to 15: spot price, net import and limit at time of weekly maximum demand

Figure 11: Queensland

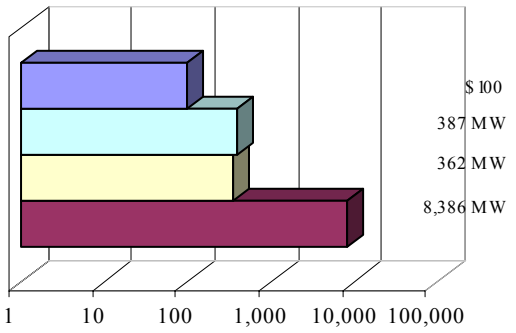


Figure 12: New South Wales

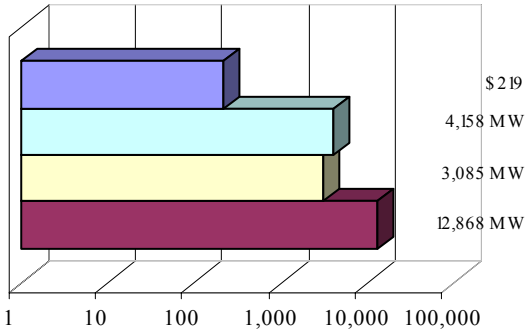


Figure 13: Victoria

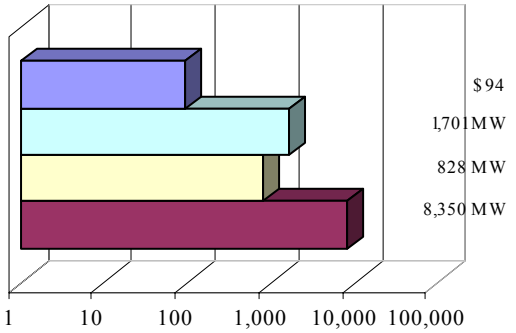


Figure 14: South Australia

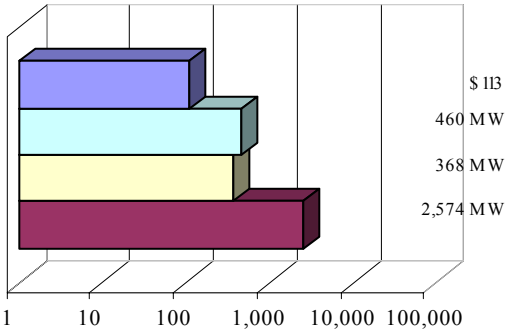
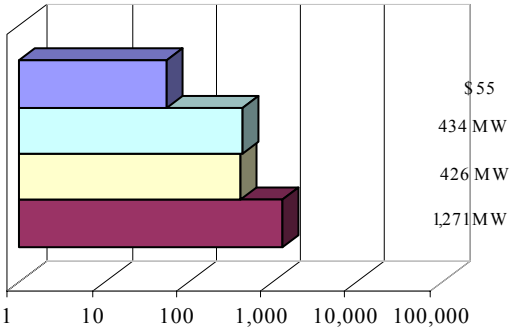


Figure 15: Tasmania



Price variations

There were 162 trading intervals where actual prices significantly varied from forecasts made 4 and 12 hours ahead of dispatch. Figures 16 to 20 show the difference in actual and forecast price versus the difference in actual and forecast demand. The figures highlight the relationship 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 16: Queensland

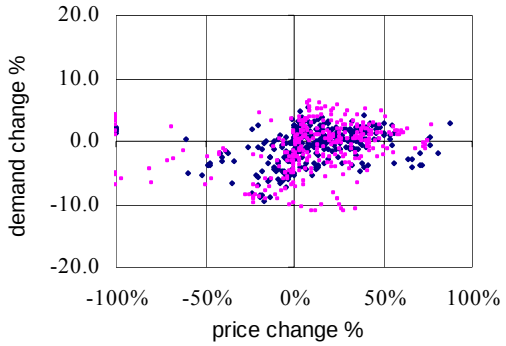


Figure 17: New South Wales

Figure 18: Victoria

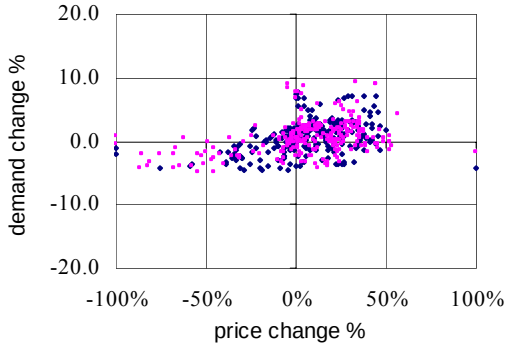


Figure 19: South Australia

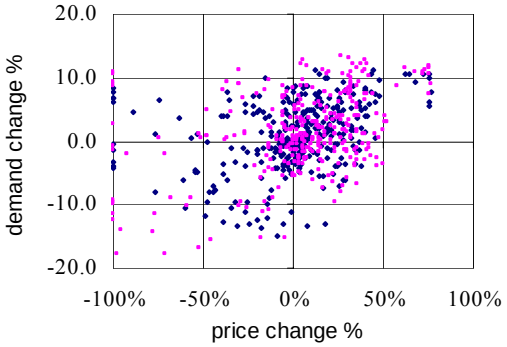
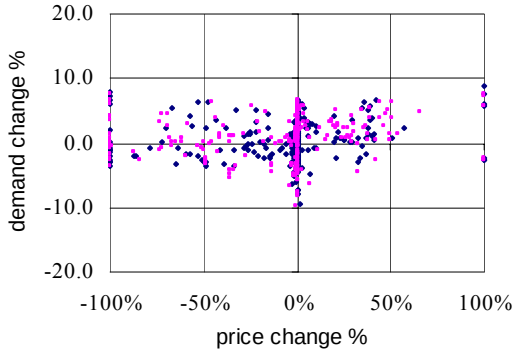


Figure 20: Tasmania



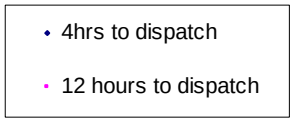
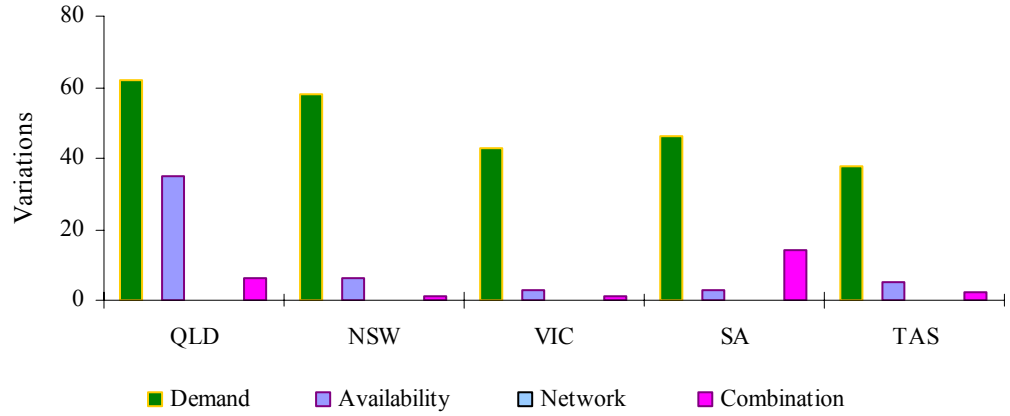


Figure 21 summarises the number and most probable reason for variations between forecast and actual prices.

Figure 21: reasons for variations between forecast and actual prices



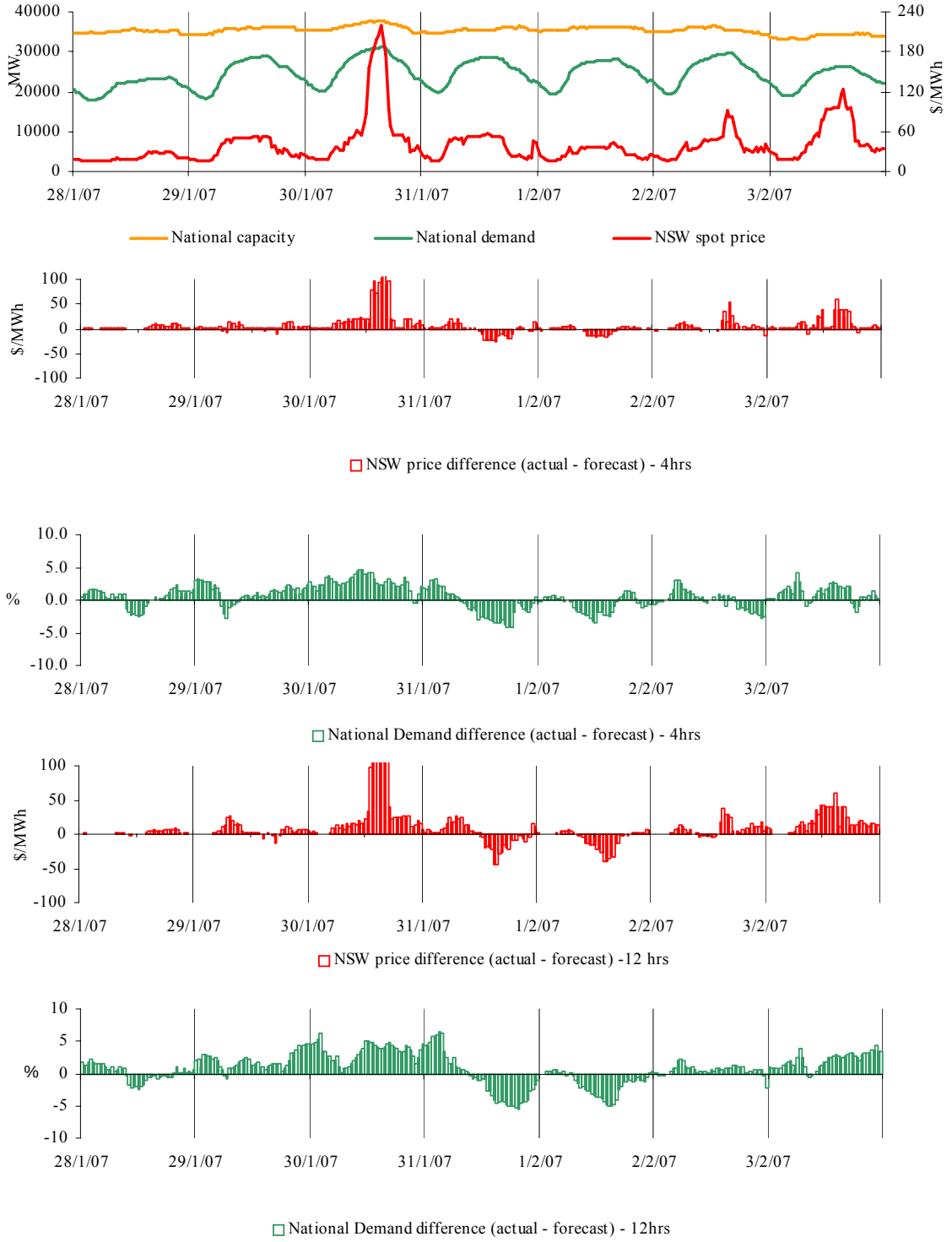
Price and demand

Figures 22 – 56 set out details of spot prices and demand on a national and regional basis. They include the actual spot price, actual demand and variation from forecasts made 4 and 12 hours ahead of dispatch.

Spot prices within the national market are regularly aligned, with conditions in one region reflected across all others. The national market outcomes section highlights pricing events that occurred when spot prices were generally aligned across all regions of the national electricity market – the New South Wales spot price has been used to represent a pseudo national price under these conditions.

On a regional basis the differences between the maximum temperature and the temperature forecast at around 6.00 pm the day before are also included. In each section, the occurrences of all prices for the week greater than three times the average have been presented. The price forecast is compared to the demand and availability forecasts made 4 and 12 hours ahead, with significant changes to these forecasts explained.

Figures 22-26: National market outcomes



There was one occasion where spot prices were nationally aligned and the New South Wales price[1] was greater than three times the New South Wales weekly average price of $43/MWh.

Tuesday, 30 January

1:30 pm	Actual	4 hr forecast	12 hr forecast
Price ($/MWh)	154.98	76.36	57.01
Demand (MW)	30638	29339	29170
Available capacity (MW)	37629	37284	37657

Conditions at the time saw national demand 1300 MW higher than forecast four hours ahead. Prices were generally aligned across the mainland with flows north from Victoria limited to between 200 MW and 300 MW. Flows from Snowy to New South Wales reached almost 3300 MW later in the afternoon.

From 7.42 am, CS Energy shifted as much as 125 MW of capacity from prices of less than $100/MWh to prices above $9000/MWh. The rebid reasons given were "Swan B and E plant constraints" "Callide B1 Plant constraints" and "Swan E ambient conditions". These rebids were effective until 6.30 pm.

From 7.49 am Delta Electricity reduced the availability across Munmorah and Vales Point by a total of 270 MW as a result of plant problems. All of this capacity was priced at less than $20/MWh. The rebid reasons given were "Salt leak::Avail limit", "Air heater::capacity limit change" and "Governor::avail limit".

From 8.51 am AGL Hydro shifted a total of 290 MW of capacity across its portfolio from prices above $9000/MWh to prices of zero. This included 150 MW of capacity at Hallet in South Australia and 142 MW at Somerton in Victoria. The rebid reasons given were "Plant limitations::change to outage schedule", "Plant limitations::changed MW availability and "Capacity adj ambient temp::changed MW availability".

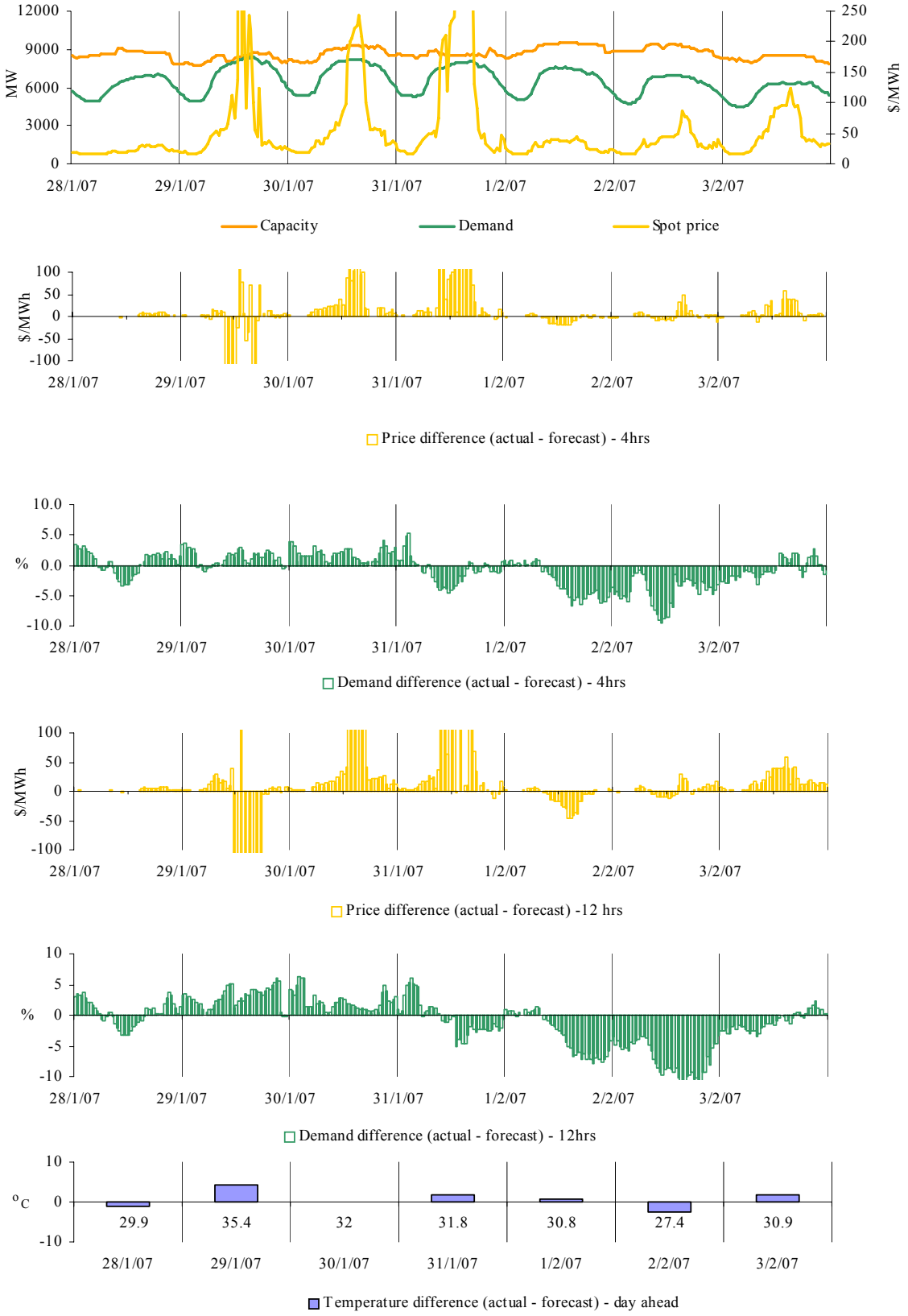
From 8.58 am, Origin Energy shifted 380 MW of capacity from prices above $9000/MWh to prices of less than $115/MWh at Mt Stuart and Roma in Queensland and Quarantine and Ladbroke Grove in South Australia. The rebid reason given was "Est change in PDS".

At 12.22 pm Macquarie Generation shifted 480 MW of capacity across its portfolio from prices below $15/MWh to above $185/MWh. The rebid reason given was "Demand higher than originally anticipated". This rebid was effective until 5 pm.

There was no other significant rebidding.

[1] The New South Wales spot price has been used to represent a pseudo national price under these conditions.

Figures 27-32: Queensland actual spot price, demand and forecast differences



There were 23 occasions in Queensland where the spot price was greater than three times the weekly average price of $64/MWh. One of these occurred when prices were generally aligned across all regions and is detailed in the national market outcomes section. The remaining 22 occasions are presented below.

Monday, 29 January

1:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	1332.40	165.11	299.87
Demand (MW)	8183	7945	7963
Available capacity (MW)	8385	8789	8675
2:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	297.47	290.00	299.87
Demand (MW)	8308	8237	8014
Available capacity (MW)	8475	8955	8675
3:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	242.01	278.88	4624.95
Demand (MW)	8297	8285	8019
Available capacity (MW)	8567	8977	8675
4:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	220.24	148.34	4624.95
Demand (MW)	8372	8280	8030
Available capacity (MW)	8685	8979	8680

Conditions at the time saw demand as much as 240 MW higher than forecast 12 hours ahead. Demand reached a new record of 8386 MW in Queensland with the temperature in Brisbane above 35 degrees. Available capacity was around 480 MW below forecast four hours ahead, with prices were generally close to those forecast four hours ahead.

At 1.05 pm, the five minute dispatch price rose to $7459/MWh. A combination of a 60 MW increase in demand, a 30 MW reduction in import capability and only 65 MW of capacity priced between $290/MWh and $4000/MWh contributed.

Flows from New South Wales into Queensland were close to the limit of between 300 MW and 400 MW for most of the afternoon.

At 7.39 am CS Energy committed 350 MW at Callide B, effective from around midday. Delays in the return to service of the unit saw it commence generating from 2 pm. This effectively removed as much as 325 MW of capacity priced below $20/MWh.

At 7.40 am Origin Energy shifted 288 MW of capacity at Mt Stuart from prices above $9000/MWh to below $280/MWh. At the same time, a further 64 MW of capacity was shifted from above $9000/MWh to below zero at Roma. The rebid reason given was “Est change in PDS”.

Over two rebids at 1.07 pm and 1.22 pm, Tarong Energy shifted 290 MW of capacity at Wivenhoe from prices above $7000/MWh to below $300/MWh, committing a unit. The rebid reasons given were “Portfolio rearrangement::volume profile change” and “Cover contract position::volume profile change”.

There was no other significant rebidding

Tuesday, 30 January

2:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	200.61	91.16	80.00
Demand (MW)	8165	7951	8030
Available capacity (MW)	9283	9314	9057
2:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	205.11	124.75	86.39
Demand (MW)	8187	8079	8060
Available capacity (MW)	9277	9323	9057
3:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	221.86	119.11	86.31
Demand (MW)	8156	8055	8043
Available capacity (MW)	9274	9319	9057
3:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	227.40	113.20	87.73
Demand (MW)	8142	8053	8048
Available capacity (MW)	9276	9311	9057
4:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	243.10	112.84	109.10
Demand (MW)	8136	8067	8068
Available capacity (MW)	9287	9320	9067
4:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	207.55	113.67	87.21
Demand (MW)	8149	8128	8059
Available capacity (MW)	9250	9266	9082

Conditions at the time saw demand up to 210 MW higher than forecast four hours ahead, with demand close to the record demand that occurred the previous day. Prices were aligned with New South Wales.

Over several rebids from 7.40 am CS Energy shifted 155 MW of capacity across its portfolio from prices below $80 MWh to above $260/MWh. The rebid reason given included “Swan B and E plant conditions”, Callide B1 plant constraints” and “Cal B2 change based on latest predispatch”.

At 10.39 am Origin Energy shifted 190 MW of capacity at Mt Stuart from prices above $9000/MWh to below $115/MWh. The rebid reason given was “Est change in PDS”.

At the time of dispatch there was only 85 MW of capacity in Queensland priced between $90/MWh and $290/MWh.

There was no other significant rebidding.

Wednesday, 31 January

10:30 am	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	207.55	113.67	87.21
Demand (MW)	8149	8128	8059
Available capacity (MW)	9250	9266	9082
11:00 am	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	204.39	59.58	54.49
Demand (MW)	7566	7866	7632
Available capacity (MW)	8583	9099	9103
12:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	210.04	59.93	55.15
Demand (MW)	7596	7874	7687
Available capacity (MW)	8570	9094	9098
12:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	227.46	142.20	57.95
Demand (MW)	7747	8107	7804
Available capacity (MW)	8557	9069	9098
1:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	234.48	142.20	57.94
Demand (MW)	7831	8147	7838
Available capacity (MW)	8529	9073	9098
1:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	241.72	142.30	66.19
Demand (MW)	7860	8165	7886
Available capacity (MW)	8531	9085	9078
2:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	295.93	128.99	299.01
Demand (MW)	7912	8190	8314
Available capacity (MW)	8530	9114	9108
2:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	298.97	290.75	298.95
Demand (MW)	7972	8210	8282
Available capacity (MW)	8526	8703	9138
3:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	440.80	86.11	298.95
Demand (MW)	8002	8151	8313
Available capacity (MW)	8537	9192	9168
3:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	299.85	100.90	298.95
Demand (MW)	7945	8163	8310
Available capacity (MW)	8565	9074	9198

4:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	299.57	72.15	290.00
Demand (MW)	8008	8061	8269
Available capacity (MW)	8583	9226	9279
4:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	292.99	70.03	128.68
Demand (MW)	8064	8015	8212
Available capacity (MW)	8566	9225	9279
5:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	278.84	68.18	87.34
Demand (MW)	8056	8028	8165
Available capacity (MW)	8591	9048	9309

Conditions at the time saw demand close to forecast four hours ahead with available capacity up to 700 MW below forecast four hours ahead. Demand in Queensland was above 8000 MW for the third consecutive day.

Between 2 pm and 4 pm, lightning in the vicinity of the Queensland to New South Wales interconnector saw flows across QNI into Queensland reduced by around 100 MW to 340 MW. Counter price flows into New South Wales of around 130 MW where occurring across the Terranora interconnector at the same time.

Starting at 8.28 pm the previous evening, CS Energy shifted as much as 155 MW of capacity across its portfolio from prices below $100/MWh into prices above $9000/MWh. The rebid reasons given included “Portfolio plant limit optimisation” and “Changed plant conditions”.

At 9.11 am Origin Energy shifted 288 MW of capacity at Mt Stuart from prices above $9000/MWh to below $275/MWh. The rebid reason given was “Est change in PDS”.

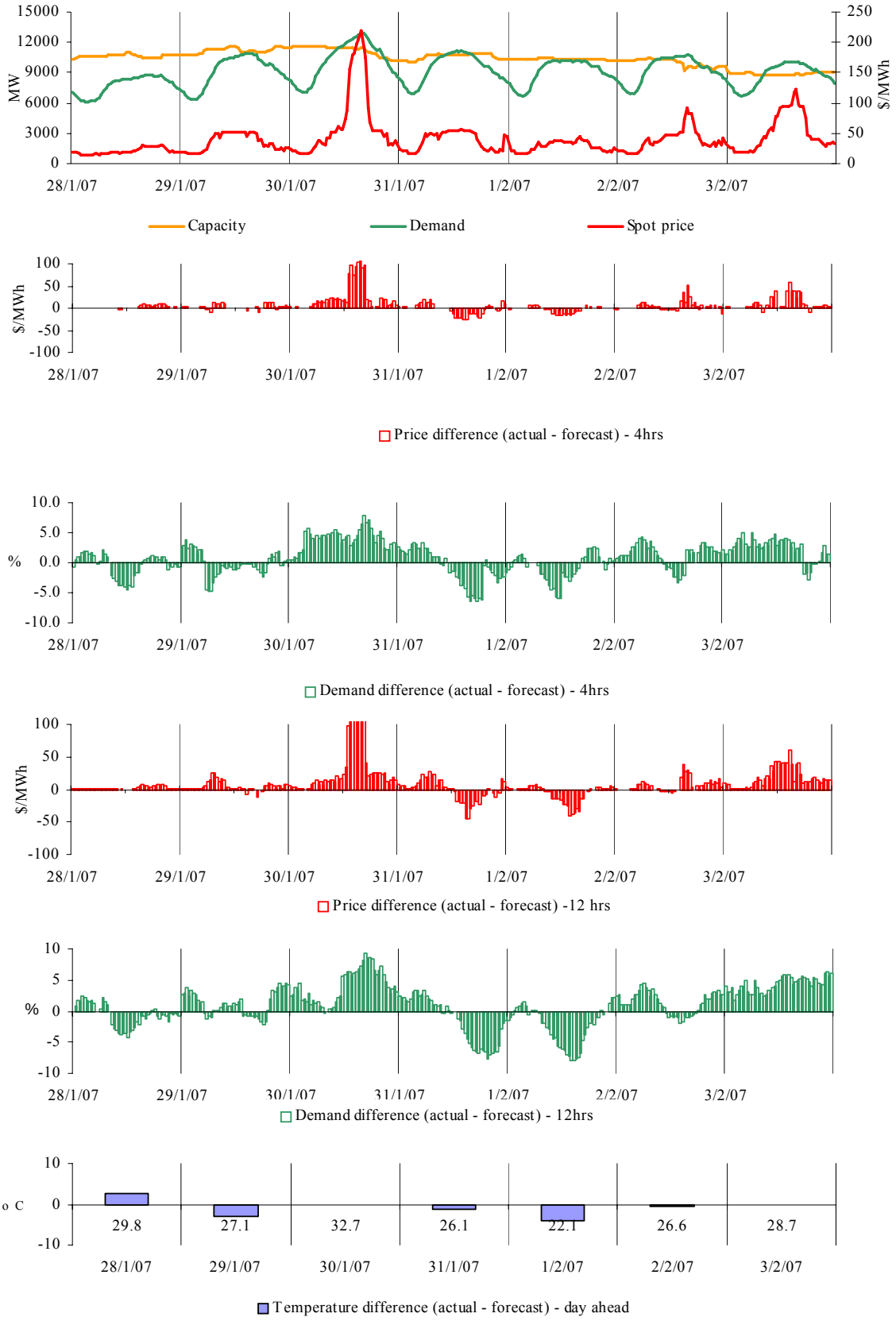
At 9.13 am Callide C unit three tripped reducing the available capacity in the region by 450 MW. All of this capacity was priced below $20/MWh. The unit was scheduled to return to service at midday, but did not return until 6 pm.

At 9.38 am Tarong Energy shifted 130 MW of capacity at Tarong from prices below $290/MWh to above $4500/MWh. The rebid reason given was “Emissions::volume profile”.

Millmerran unit two was expected to return to service at around midday but delays saw the unit not return to service until 13 hours later. These delays effectively saw as much as 280 MW of capacity priced at less than zero not available during this period.

There was no other significant rebidding.

Figures 33-38 New South Wales actual spot price, demand and forecast differences



There were eight occasions where the spot price in New South Wales was greater than three times the New South Wales weekly average price of $43/MWh. One of these occasions occurred when prices were generally aligned across all regions and is detailed in the national market outcomes section. The remaining seven occasions occurred on the same day and are presented below.

Tuesday, 30 January

2:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	178.55	80.84	72.16
Demand (MW)	12283	11937	11582
Available capacity (MW)	11482	11552	11754
2:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	182.25	108.46	76.48
Demand (MW)	12467	12042	11716
Available capacity (MW)	11252	11552	11754
3:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	198.54	103.61	76.92
Demand (MW)	12637	12157	11838
Available capacity (MW)	11370	11552	11754
3:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	204.46	101.60	78.19
Demand (MW)	12770	12190	11896
Available capacity (MW)	11390	11552	11754
4:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	218.91	101.26	97.23
Demand (MW)	12868	12166	11933
Available capacity (MW)	11392	11552	11754
4:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	190.34	100.63	77.70
Demand (MW)	12844	12034	11798
Available capacity (MW)	11392	11552	11752
5:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	175.68	78.97	68.97
Demand (MW)	12696	11700	11512
Available capacity (MW)	11132	11292	11752

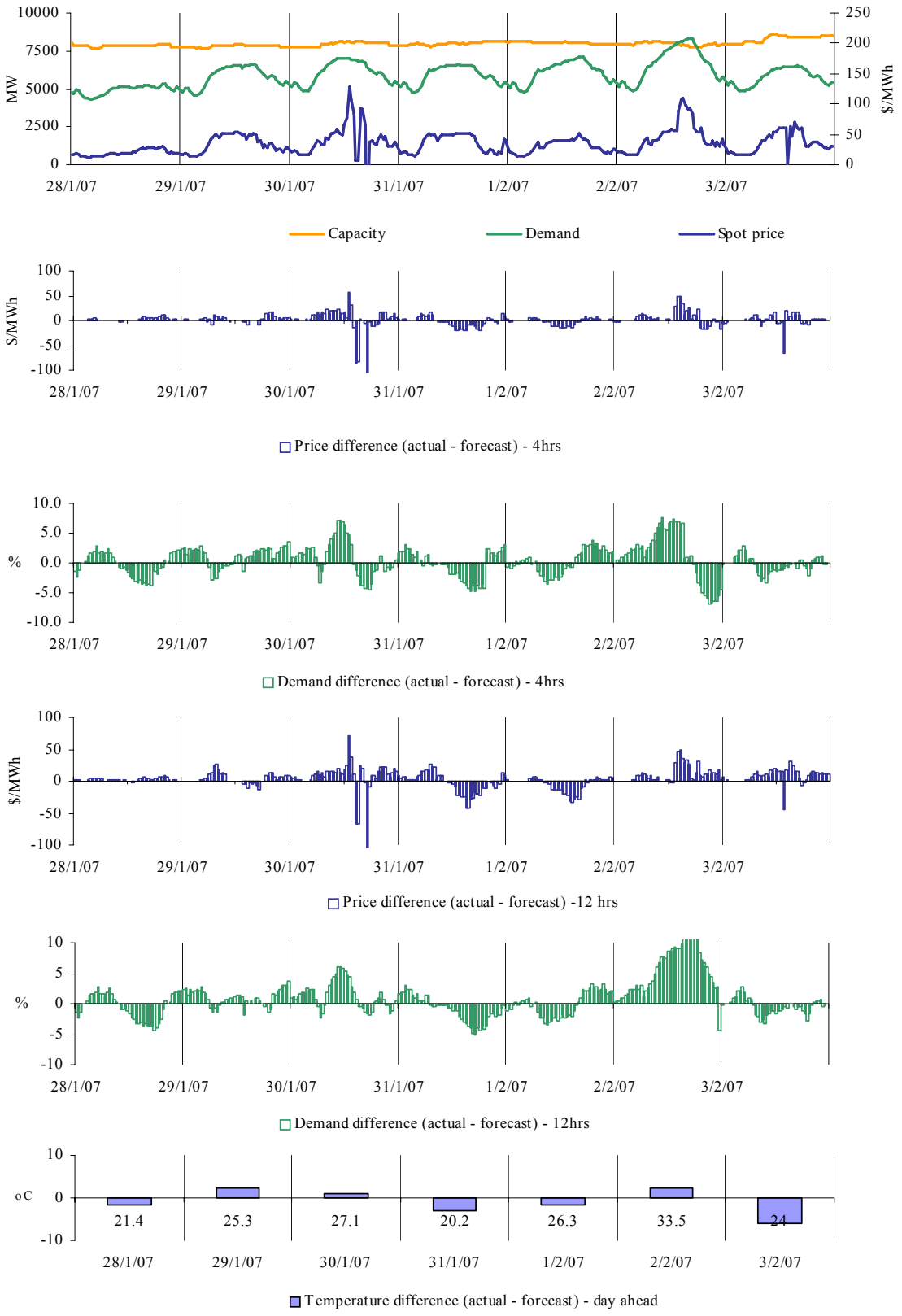
Conditions at the time saw demand approaching record levels and up to 1000 MW higher than forecast four hours ahead.

At 7.49 am, Delta Electricity began reducing the available capacity of Munmorah and Vales Point by a total of 270 MW. All of this capacity was priced at less than $20/MWh. The rebid reasons given were “Salt leak::Avail limit”, “Air heater::capacity limit change” and “Governor::avail limit”.

At 12.22 pm Macquarie Generation shifted 500 MW of capacity across its portfolio from prices below $15/MWh to above $185/MWh. The rebid reason given was “Demand higher than originally anticipated”. At 1.51 pm Bayswater unit four experienced coal ashing problems and its capacity was reduced by 230 MW. As a result 150 MW was shifted across the remaining Bayswater units from prices above $240/MWh to below $15/MWh. The rebid reason given was “Adjustment due to BW4”.

There was no other significant rebidding.

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



There were two occasions in Victoria where the spot price was greater than three times the weekly average price of $37/MWh. One of these occurred when prices were generally aligned across all regions and is detailed in the national market outcomes section. The remaining occasion is presented below.

Friday, 2 February

3:00 pm	Actual	4 hr forecast	12 hr forecast
Price ($/MWh)	110.96	62.44	61.10
Demand (MW)	8143	7697	7413
Available capacity (MW)	7936	8067	8083

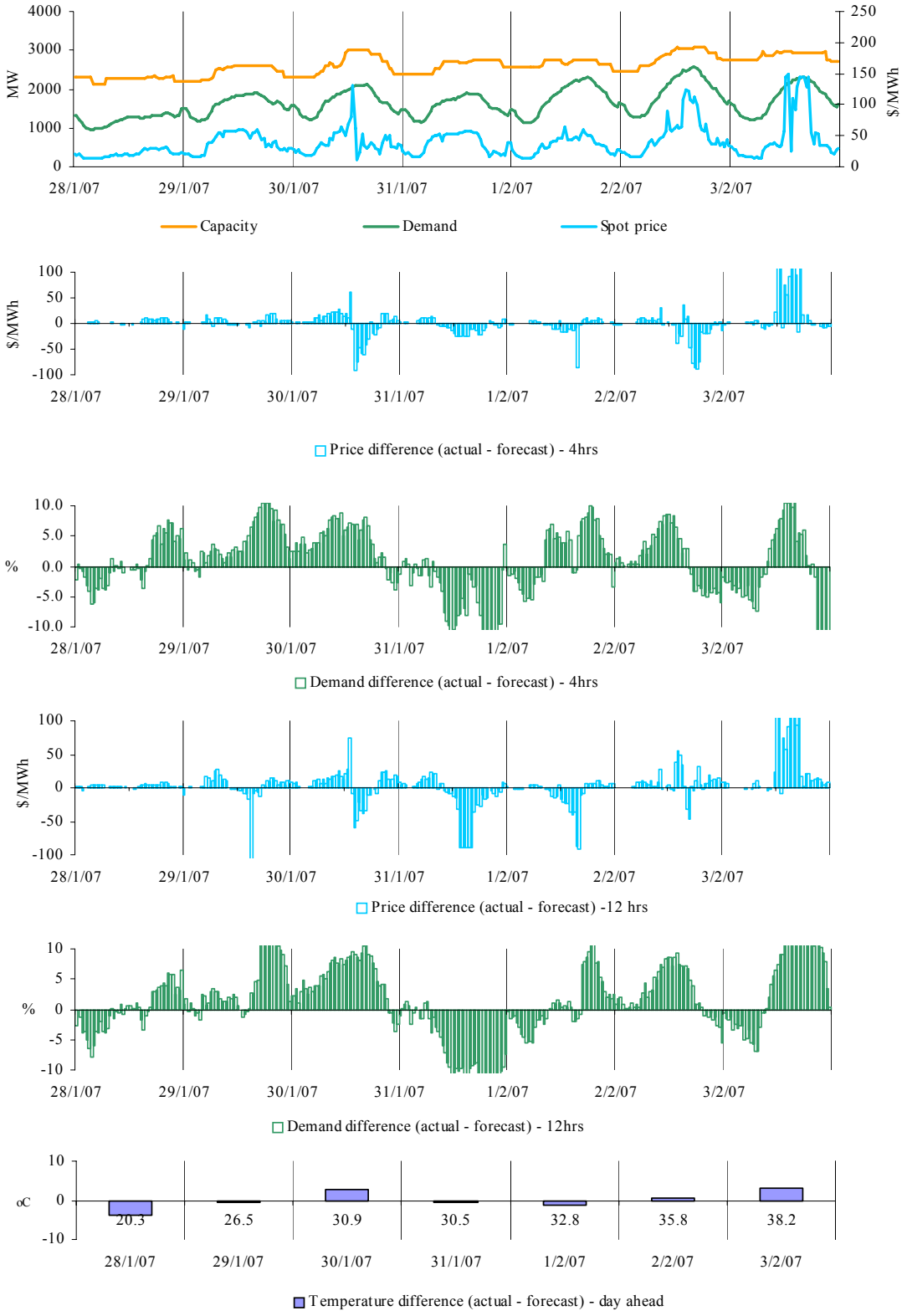
Conditions at the time saw demand around 730 MW higher than forecast 12 hours ahead and around 450 MW higher than forecast four hours ahead.

TRUenergy, through day ahead bids, had 220 MW of capacity at Yallourn priced above $100/MWh. At around 7.30 am this capacity was shifted into prices of less than $10/MWh. From 1.30 pm the availability of the station was reduced by 85 MW and a further 115 MW repriced to above $9000/MWh. The rebid reasons given were “PD conditions::price volume tradeoff”, “Market conditions::I/C derated” and “Plant cond::ROC has changed”.

From early in the morning over a number of rebids, AGL Hydro shifted as much as 352 MW of capacity into prices of less than $50/MWh from above $100/MWh. The rebid reason given was “Forecast price change::forecast price change”.

There was no other significant rebidding.

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



There were seven occasions in South Australia where the spot price was greater than three times the weekly average price of $43/MWh. One of these occurred when prices were generally aligned across all regions and is detailed in the national market outcomes section. The remaining six occasions are presented below.

Saturday, 3 February

12:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	145.00	35.00	35.00
Demand (MW)	2097	1968	1940
Available capacity (MW)	2975	2958	2938
1:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	148.10	35.00	35.00
Demand (MW)	2156	1991	1962
Available capacity (MW)	2972	2958	2938
3:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	145.00	35.00	35.00
Demand (MW)	2287	2047	2027
Available capacity (MW)	2930	2953	2938
4:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	145.00	35.00	38.00
Demand (MW)	2298	2072	2041
Available capacity (MW)	2930	2988	2938
4:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	145.00	51.03	35.00
Demand (MW)	2311	2065	2064
Available capacity (MW)	2927	2973	2938
5:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	145.00	35.00	35.00
Demand (MW)	2258	2135	1994
Available capacity (MW)	2927	2963	2938

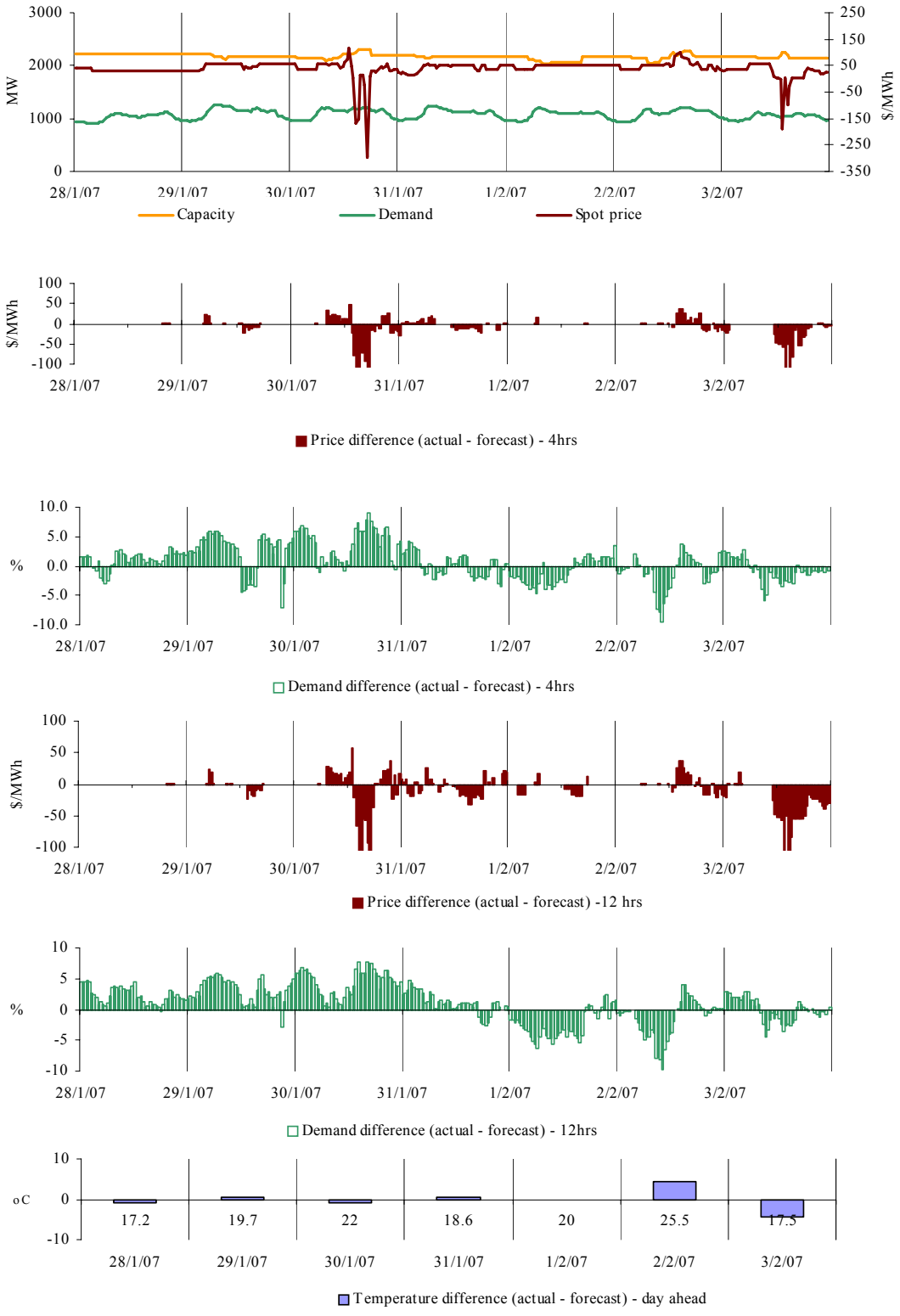
Conditions at the time saw demand up to 250 MW higher than forecast.

A network constraint associated with maintenance at Rowville in Victoria, first planned on 18 January, resulted in counter-priced flows and the accumulation of negative settlement residues across the Heywood interconnector into South Australia from around 10 am. From around 10.50 am, NEMMCO invoked constraints to limit these residues, steadily reducing exports from Victoria to a low of 150 MW at midday when the price in South Australia increased from $48/MWh to $145/MWh. At 12.55 pm, the export limit was reversed for one dispatch interval forcing flows into Victoria at 180 MW, a 330 MW step change. This led to the price increasing to $300/MWh. The following dispatch interval the limit was corrected to 180 MW into South Australia.

Similar intervention by NEMMCO continued throughout the day, limiting imports into South Australia to around 20 MW.

There was no significant rebidding.

Figures 51-56: Tasmania actual spot price, demand and forecast differences



There were no occasions where the spot price in Tasmania was greater than three times the weekly average price of $39MWh.

Figures 57 – 61 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.

Figure 57: Queensland closing bid prices, dispatched generation and spot price

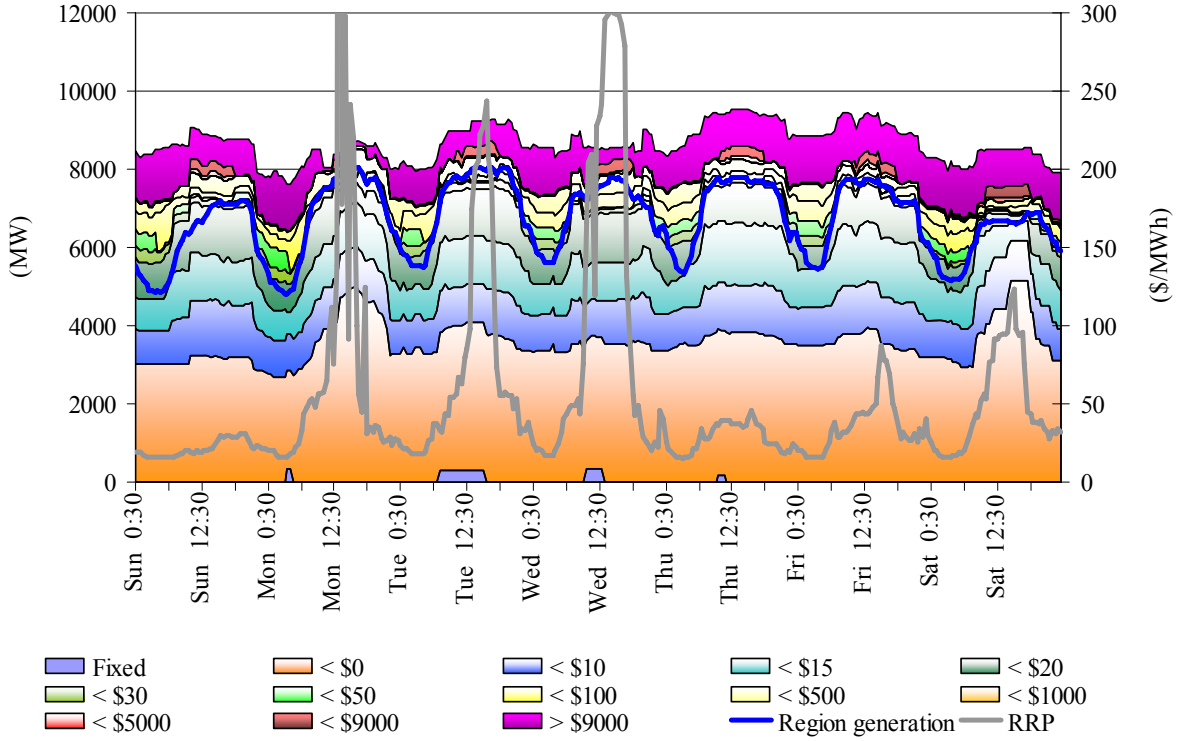


Figure 58: New South Wales closing bid prices, dispatched generation and spot price

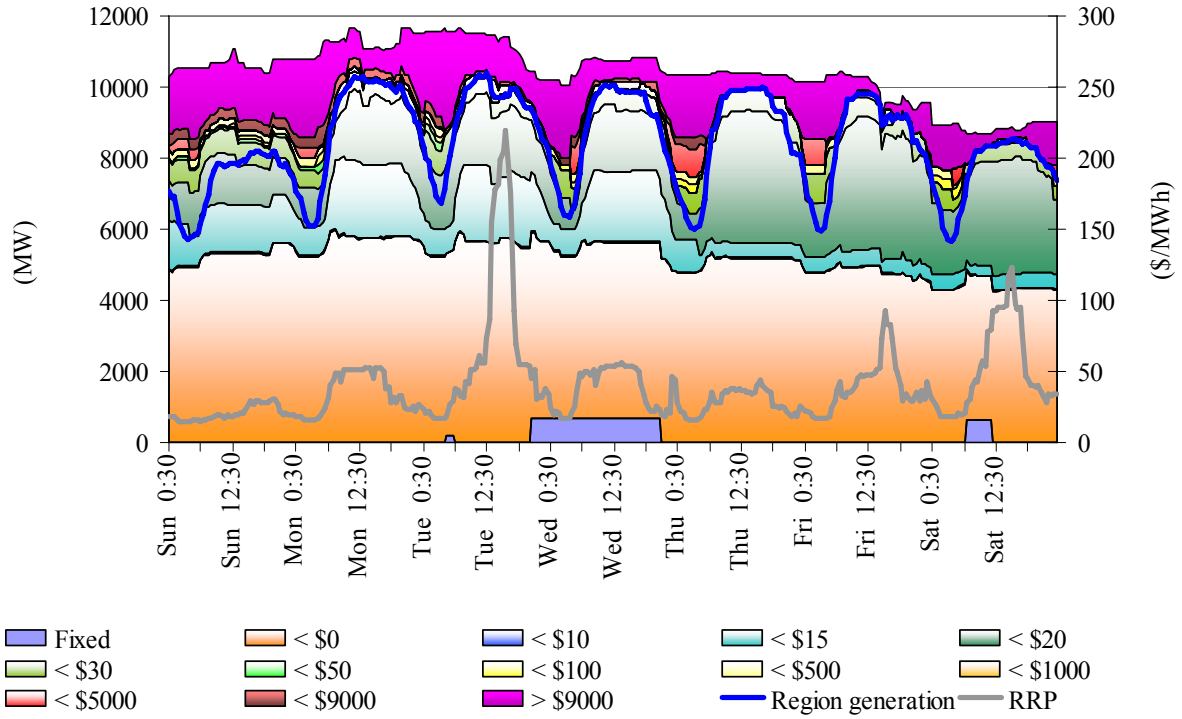


Figure 59: Victoria closing bid prices, dispatched generation and spot price

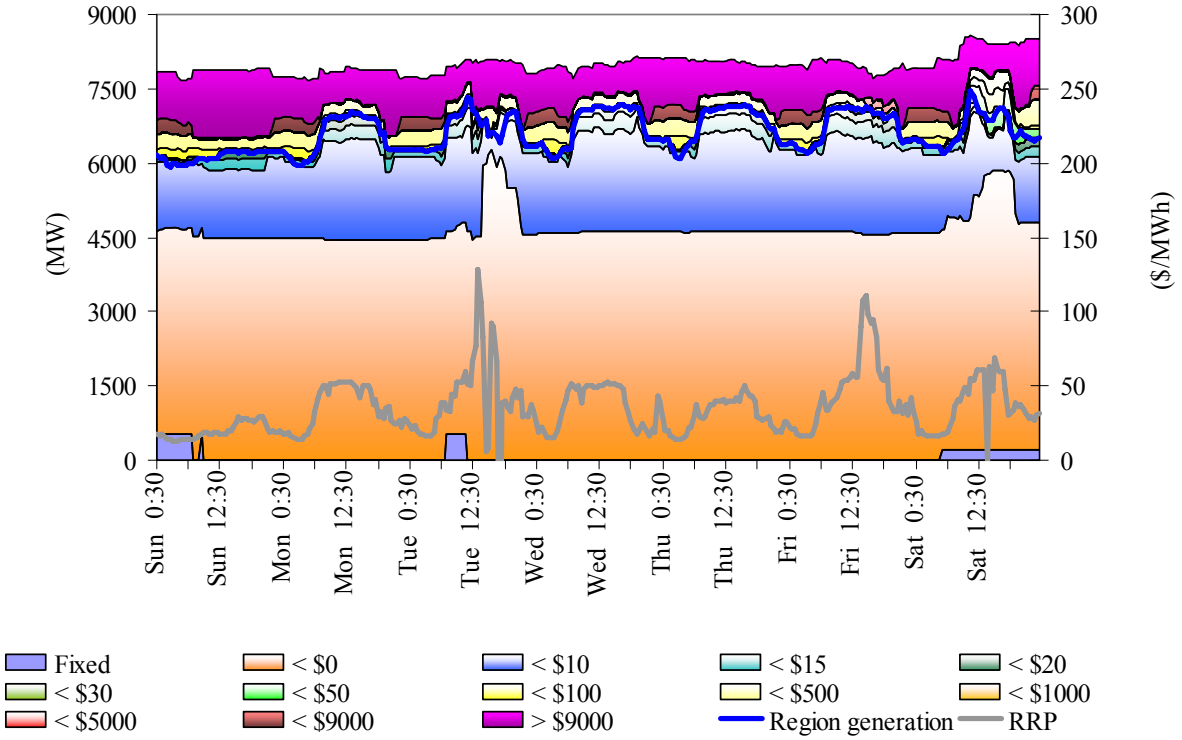


Figure 60: South Australia closing bid prices, dispatched generation and spot price

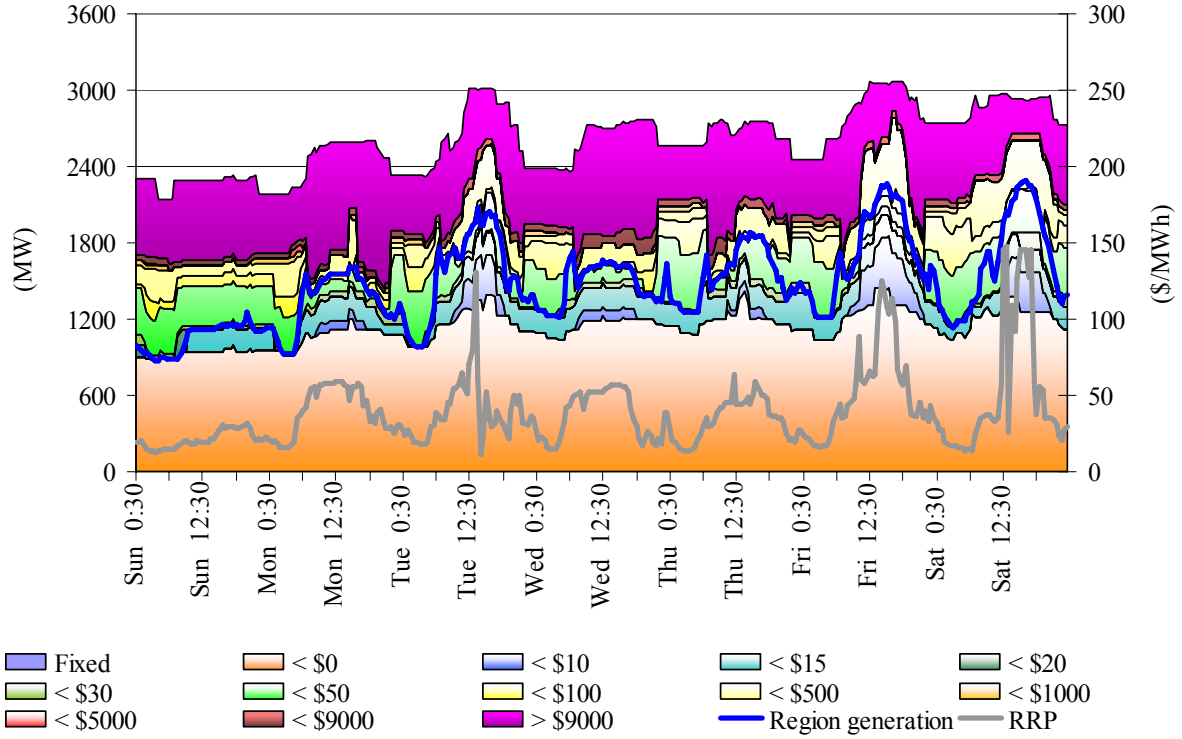
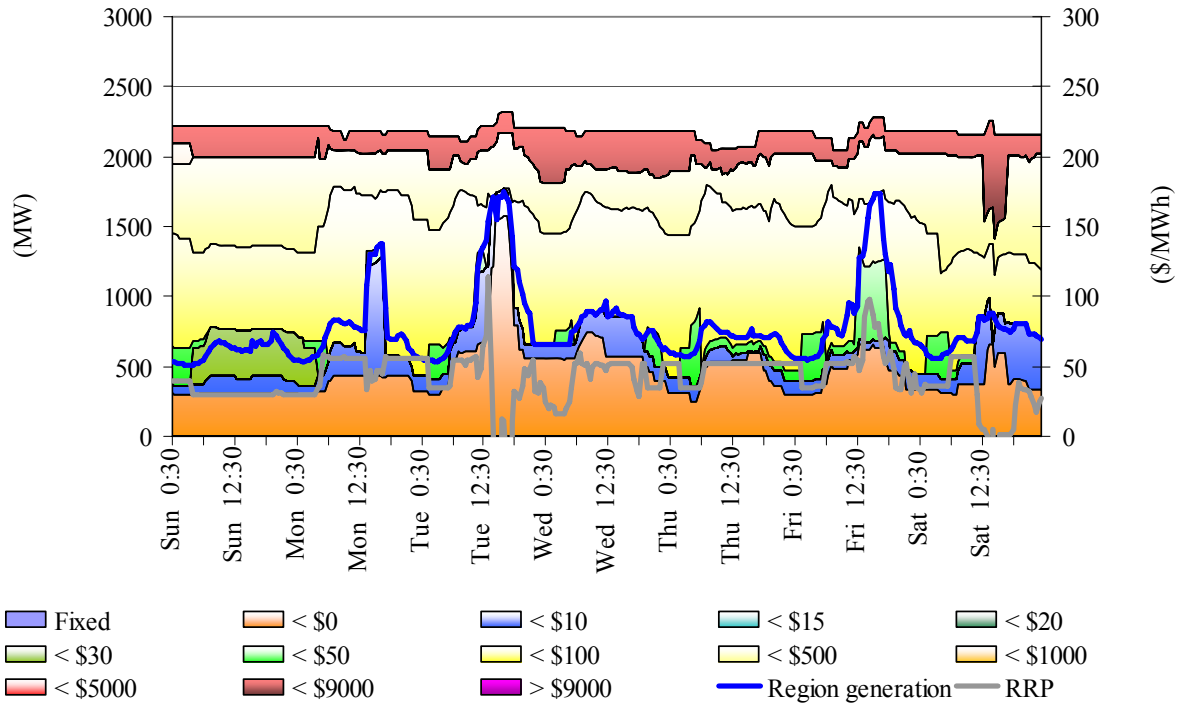


Figure 61: Tasmania closing bid prices, dispatched generation and spot price



Ancillary service market

The total cost of ancillary services on the mainland for the week was 205 000 or 0.1 per cent of the energy market. On Wednesday lightning near the Bulli Creek to Dumaresq line occurred caused a local requirement for raise 5 minute services in Queensland. The total cost was $93 000. Figure 62 summarises the volume weighted average prices and costs for the eight frequency control ancillary services across the mainland.

Figure 62: frequency control ancillary service prices and costs for the mainland

	Raise 6 sec	Raise 60 sec	Raise 5 min	Raise Reg	Lower 6 sec	Lower 60 sec	Lower 5 min	Lower reg
Last week ($/MW)	0.32	0.18	2.35	1.87	0.04	0.22	0.68	0.84
Previous week ($/MW)	0.36	0.23	0.70	1.69	0.04	0.19	0.54	1.03
Last quarter ($/MW)	1.76	0.73	1.15	1.54	0.39	2.28	5.00	1.93
Market Cost ($1000s)	$11	$5	$126	$33	$0	$2	$17	$11
% of energy market	0.01%	0.01%	0.07%	0.02%	0.01%	0.01%	0.01%	0.01%

The total cost of ancillary services in Tasmania for the week was $46 000 or 0.65 per cent of the total turnover in the energy market in Tasmania. Figure 63 summarises for Tasmania the prices and costs for the eight frequency control ancillary services.

Figure 63: 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 ($/MW)	1.19	0.59	0.79	1.70	0.16	0.69	0.68	0.69
Previous week ($/MW)	6.08	0.51	0.56	1.26	0.21	0.90	0.58	0.81
Last quarter ($/MW)	4.97	0.49	2.93	3.00	12.67	0.43	0.82	0.45
Market Cost ($1000s)	$5	$7	$9	$13	$1	$3	$3	$5
% of energy market	0.07%	0.10%	0.12%	0.19%	0.01%	0.04%	0.04%	0.07%

Figure 64 shows the daily breakdown of cost for each frequency control ancillary service.

Figure 64: daily frequency control ancillary service cost

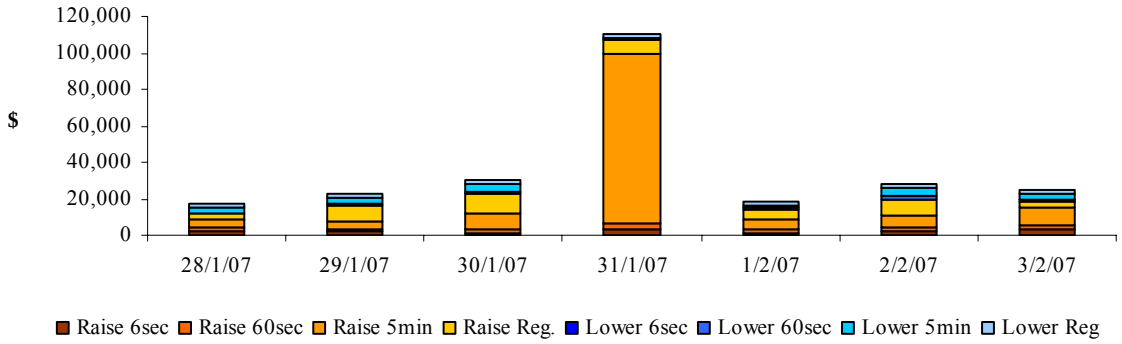
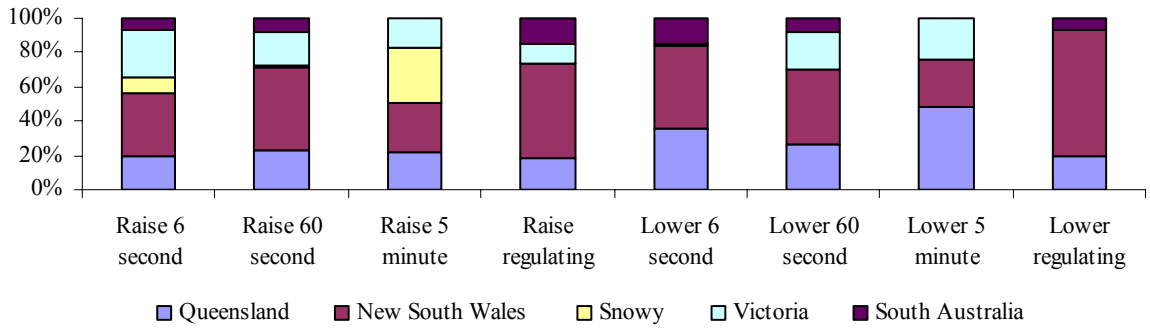


Figure 65 shows the contribution, on a percentage basis, that frequency control ancillary service providers are utilised (in each mainland region) to satisfy the total requirement for each service.

Figure 65: regional participation in ancillary services on the mainland



Figures 66 and 67 show 30-minute prices for each frequency control ancillary service throughout the week.

Figure 66: prices for raise services

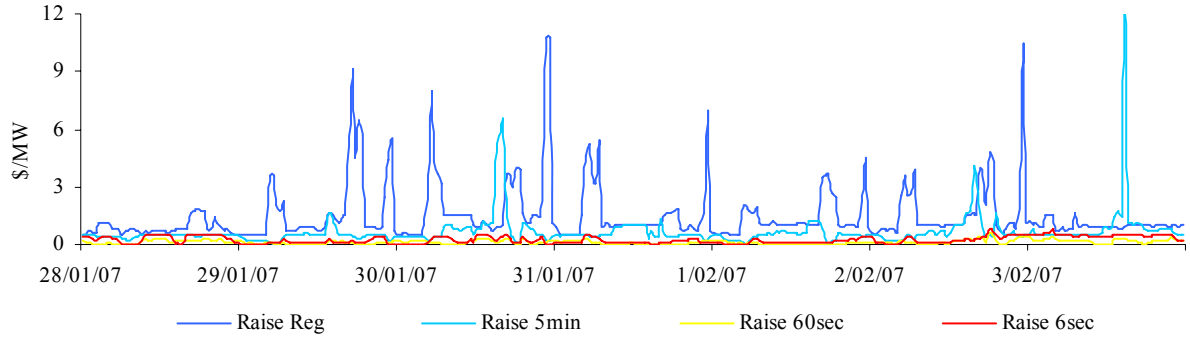


Figure 66A: prices for raise services – Tasmania

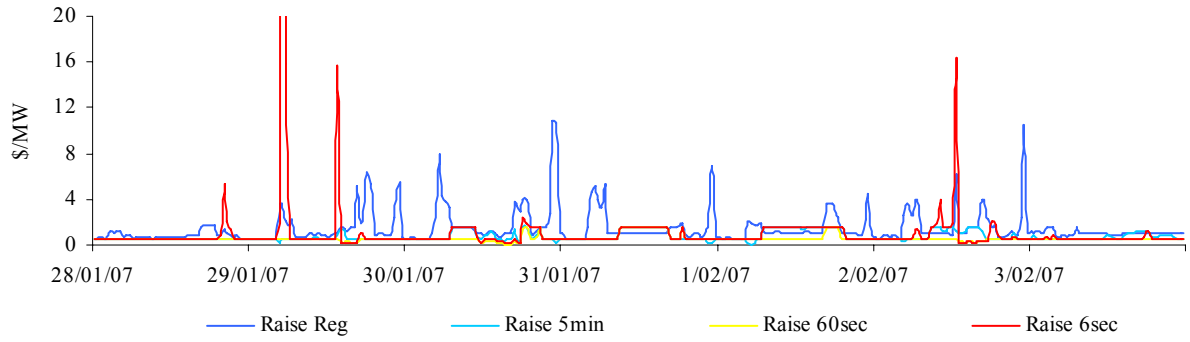


Figure 67: prices for lower services

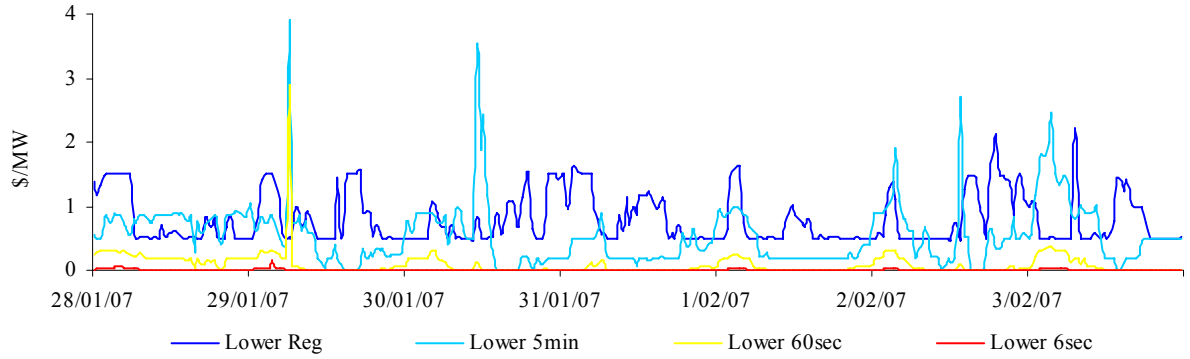
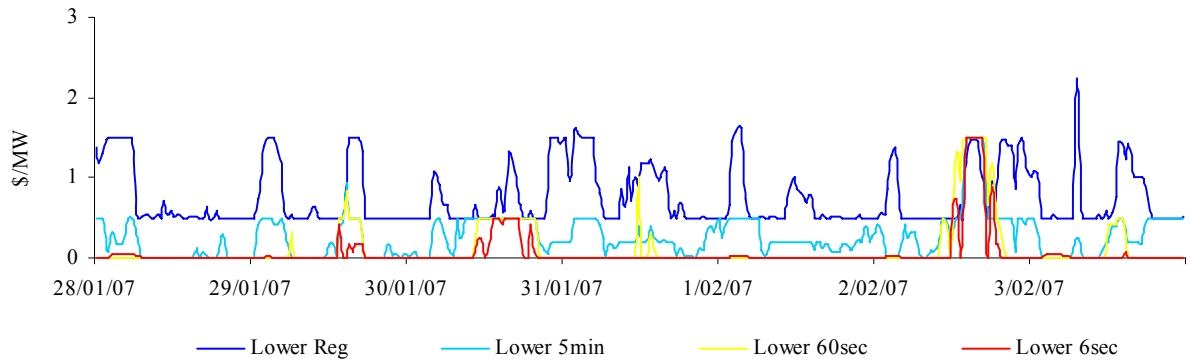


Figure 67A: prices for lower services – Tasmania



Figures 68 and 69 present for both raise and lower frequency control services the requirement, established by NEMMCO, for each service to satisfy the frequency standard.

Figure 68: raise requirements

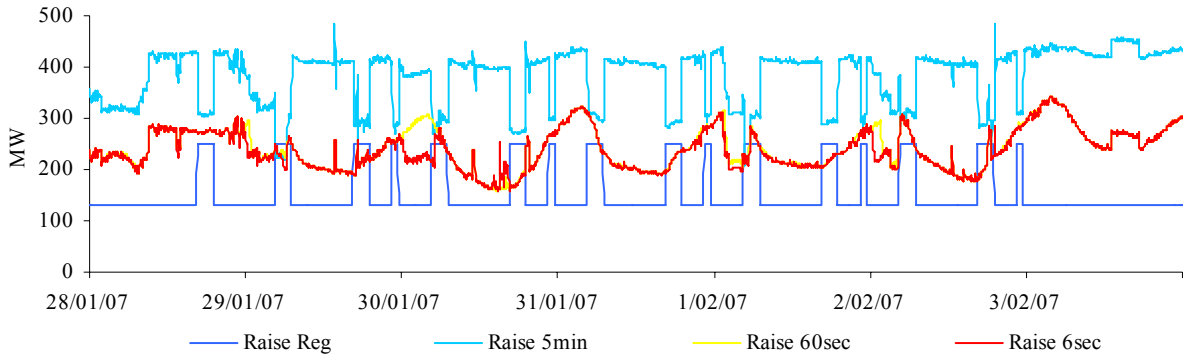


Figure 68A: raise requirements – Tasmania

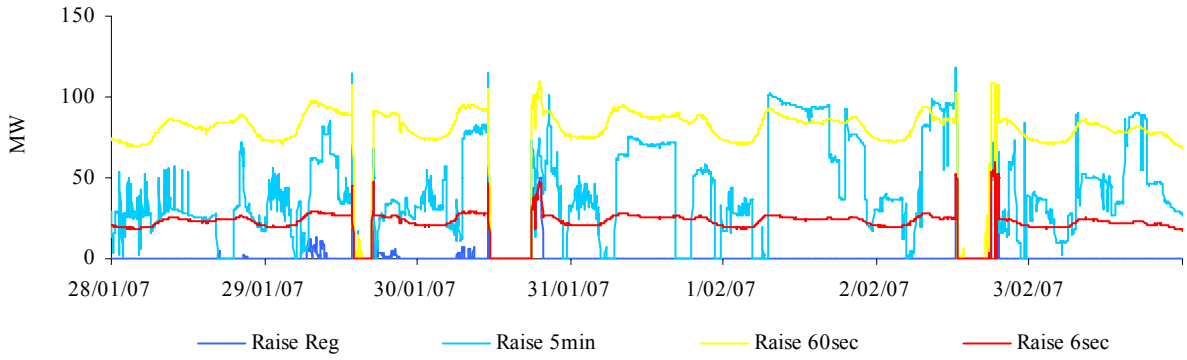


Figure 69: lower requirements

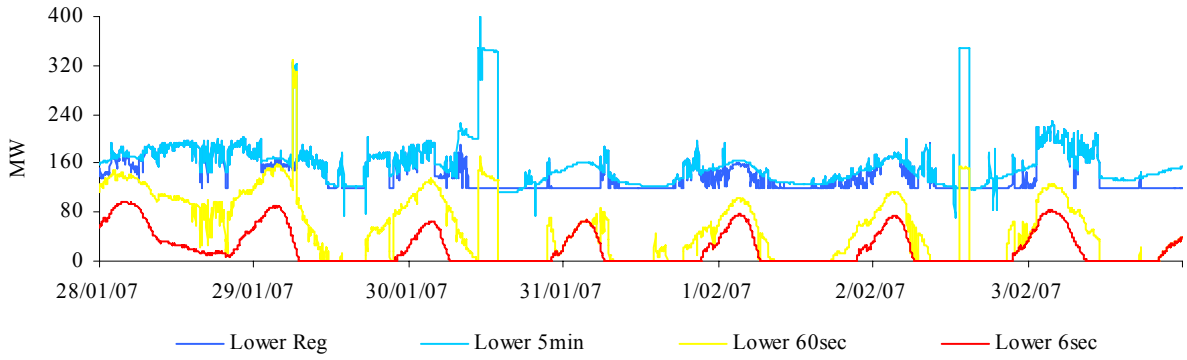
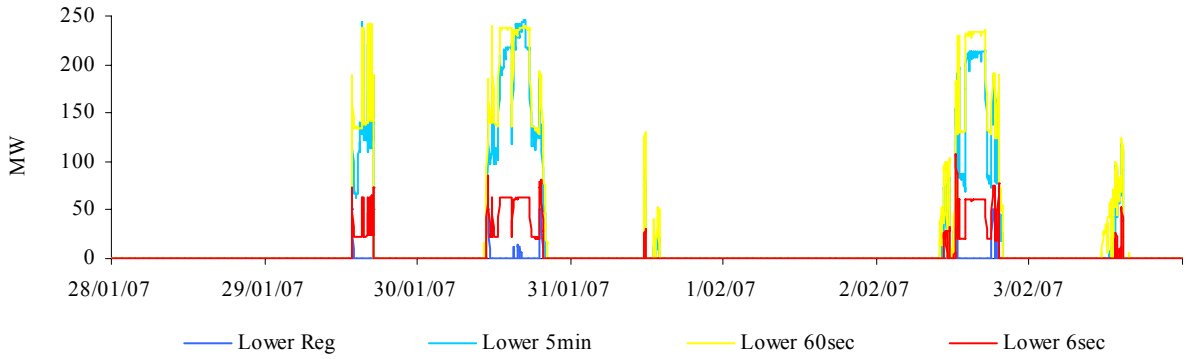


Figure 69A: lower requirements – Tasmania



Australian Energy Regulator
February 2007