Spot prices greater than $5 000/MWh

AUSTRALIAN ENERGY REGULATOR

NSW and QLD 2 February 2006

Introduction

The AER is required to publish a report covering the circumstances in which the spot price exceeded $5000/MWh, pursuant to clause 3.13.7 (d) of the Rules. That report should:

- describe significant factors contributing to the spot price exceeding $5000/MWh, including withdrawal of generation capacity and network availability;
- assess whether rebidding pursuant to clause 3.8.22 contributed to the spot price exceeding $5000/MWh;
- identify the marginal scheduled generating units; and
- identify all units with offers for the trading interval equal to or greater than $5000/MWh and compare these dispatch offers to relevant dispatch offers in previous trading intervals.

This report examines the factors that can contribute to the spot price exceeding $5000/MWh including; changes in demand (compared to that forecast by NEMMCO); generator offers and rebidding (including changes to generation capacity); and changes to network availability.

NEMMCO produce a forecast of market conditions for each 30-minute trading interval of the trading day, including forecast price. These forecasts are based on information compiled by NEMMCO and submitted by participants. The first forecast, or predispatch run, for a trading day is prepared at around 1 pm the previous day and is updated every half hour, taking into account: changes in demand; network capability; and participant bids and rebids. The accuracy and timeliness of this information is critical to allow participants to make informed commercial decisions based on the best information available at the time.

The report focuses on two forecasting horizons, namely 4 and 12 hours ahead of dispatch and endeavours to compare and explain actual outcomes with reference to these timeframes.

Summary

On Thursday 2 February high temperatures in New South Wales, led to a new record demand of 13 300 MW at 3 pm. The maximum temperature in Sydney was as forecast at 34 degrees and followed 37 degrees the previous day.

Half-hour spot prices exceeded $5000/MWh for the six trading intervals between 1.30 pm and 4 pm in New South Wales, for five of those trading intervals in Queensland and three intervals in the Snowy region. Figure 1 identifies those intervals where the spot price exceeded $5000/MWh in New South Wales and the prices in Queensland and Snowy at the time.

Figure 1 - Spot prices above $5000/MWh

Trading interval ending	NSW spot price ($/MWh)	Queensland spot price ($/MWh)	Snowy spot price ($/MWh)
1:30 pm	**6460**	**6348**	0
2:00 pm	**7579**	**5793**	0
2:30 pm	**9535**	**9157**	1240
3:00 pm	**9217**	**6598**	**6200**
3:30 pm	**9739**	1572	**7440**
4:00 pm	**8786**	**6227**	**5997**

For the spot prices above $5000/MWh, the marginal scheduled generating units involved in setting price and how those prices were determined by the market systems are detailed in Appendix A.

Prices above $5000/MWh

The contributing factors to market prices can be categorised into:

- market forecasts;
- changes to network availability;
- rebidding, including changes to generation capacity; and
- offer prices.

Market forecasts. Prices were aligned across Queensland and New South Wales for the majority of the period where the spot price was greater than $5000/MWh in New South Wales. Figure 2 shows, for those trading intervals actual price, demand and available capacity in Queensland, and compares it with that forecast 4 and 12 hours ahead of dispatch. Figure 3 shows similar information for New South Wales.

Figure 2: Queensland actual and forecast information

1:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	6347.92	106.34	57.47
Demand (MW)	7949	8073	7795
Available capacity (MW)	9519	9675	9667
2:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	5792.55	111.49	57.91
Demand (MW)	7998	8141	7838
Available capacity (MW)	9560	9675	9667
2:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	9157.27	107.81	79.51
Demand (MW)	7967	8136	7870
Available capacity (MW)	9577	9675	9667
3:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	6598.26	117.94	98.00
Demand (MW)	7877	8151	7851
Available capacity (MW)	9589	9667	9667
3:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	1571.73	108.11	98.00
Demand (MW)	7823	8156	7842
Available capacity (MW)	9665	9632	9667

4:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	6227.05	280.08	98.31
Demand (MW)	7916	8184	7836
Available capacity (MW)	9654	9633	9667

Conditions at the time saw demand around 200 MW lower than forecast four hours ahead with prices higher than forecast and reflecting conditions in New South Wales. Demand in New South Wales was at record levels and higher than forecast.

Figure 3: New South Wales actual and forecast information

1:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	6460.13	104.48	55.00
Demand (MW)	13273	12991	12627
Available capacity (MW)	10557	11195	11245
2:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	7578.53	108.67	55.00
Demand (MW)	13278	12971	12624
Available capacity (MW)	10577	11160	11195
2:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	9534.56	104.32	75.00
Demand (MW)	13275	12909	12741
Available capacity (MW)	10530	11410	11495
3:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	9216.94	113.33	95.87
Demand (MW)	13297	12991	12890
Available capacity (MW)	10487	11410	11495
3:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	9738.95	103.95	98.04
Demand (MW)	13268	13128	13052
Available capacity (MW)	10378	11410	11495
4:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	8786.37	267.39	100.57
Demand (MW)	13169	13185	13106
Available capacity (MW)	10412	11120	11495

Conditions at the time saw demand reach a new record of 13 297 MW[1] at 3 pm. Demand was as much as 650 MW higher than that forecast 12 hours ahead. The temperature was 3 degrees lower than forecast the previous day, peaking at 34 degrees. Temperatures the previous day had reached 37 degrees.

At 12.40 pm NEMMCO declared a lack of reserve condition of LOR1 (or actual available reserves were less than twice the largest generator) in New South Wales between 12.30 pm and 5 pm.

[1] This demand is taken from the market systems and is referred to as "initial supply". Initial supply is a measurement of the demand at the start of a dispatch interval and is defined as the:

- sum of the scheduled generation measurements in the region; plus
- net measured interconnector flow into the region.

Figure 4 details the actual Snowy region price, dispatched generation at Murray, and the combined output from Upper and Lower Tumut, and compares it with that forecast 4 and 12 hours ahead of dispatch.

The table also details the average Victoria to Snowy capability and the constraint identified as most limiting export capability.

Figure 4: Snowy region actual and forecast information

1:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	0.00	89.98	49.08
Murray generation	731	1200	1200
Upper + Lower Tumut gen	1645	1537	1030
Vic to Snowy Export limit	765	399	347
Export constraint	#V-SN_RAMP_E_F	VH>V1KTTX	VH>V1KTTX
2:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	0.00	93.01	49.08
Murray generation	742	1200	1200
Upper + Lower Tumut gen	1679	1630	1030
Vic to Snowy Export limit	686	399	370
Export constraint	VH_0450	VH>V1KTTX	VH>V1KTTX
2:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	1240.00	89.98	66.94
Murray generation	1134	1200	1200
Upper + Lower Tumut gen	1781	1620	1030
Vic to Snowy Export limit	200	434	367
Export constraint	VH_0000	VH>V1KTTX	VH>V1KTTX
3:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	6200.00	97.13	85.58
Murray generation	1270	1200	1200
Upper + Lower Tumut gen	1755	1630	1030
Vic to Snowy Export limit	33	363	370
Export constraint	VH_0000	VH>V1KTTX	VH>V1KTTX
3:30 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	7440.00	32.03	86.99
Murray generation	1261	1200	1200
Upper + Lower Tumut gen	1812	1578	1030
Vic to Snowy Export limit	33	877	591
Export constraint	VH_0000	V>>H_NIL_2_R	V::H_NILVD_BL_R
4:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	5997.27	53.78	89.83
Murray generation	1205	1200	1200
Upper + Lower Tumut gen	1721	1636	1030
Vic to Snowy Export limit	58	960	552
Export constraint	VH_0050	V>>H_NIL_2_R	V::H_NILVD_BL_R

Dispatch at Murray during the first hour of this period was around 400 MW lower than forecast with prices in the Snowy region set by Murray to zero. The 5-minute price was zero between 1.05 pm and 2.25 pm and fluctuated between zero and above $6000/MWh for the rest of the period.

Changes to network availability. Between 1 pm and 5 pm NEMMCO invoked discretionary constraints to limit flows from Victoria to Snowy. Those constraints were designed to limit the accumulation of negative settlement residues. Prior to these constraints being implemented, forecasts were indicating flows from Victoria

into Snowy at levels of up to 100 MW, at times counter-price. The discretionary constraints at times limited flow from Victoria to as low as zero.

Flows south from Queensland peaked at 550 MW around 2 pm. From 3 pm, these flows were reduced to 300 MW due to limitations within the 132 kV network in northern New South Wales. To increase transfer capability across QNI, NEMMCO instructed Transgrid to reconfigure the 132 kV network in northern New South Wales between 3.30 pm and 4.10 pm.

Network limits between central and south Queensland were restricting as much as 400 MW of generation capacity central Queensland.

Flows north into New South Wales from Snowy were limited to around 3100 MW and at the nominal limit for this interconnector.

Figures 5-8 show the target flows and limits on the New South Wales to Queensland (QNI), New South Wales to Queensland (DirectLink), Snowy to New South Wales (Snowy1) and Victoria to Snowy (Vic-Snowy) interconnectors respectively between 12 pm and 8 pm on Thursday 2 February.

Figure 5: QNI interconnector target flows including import and export limits

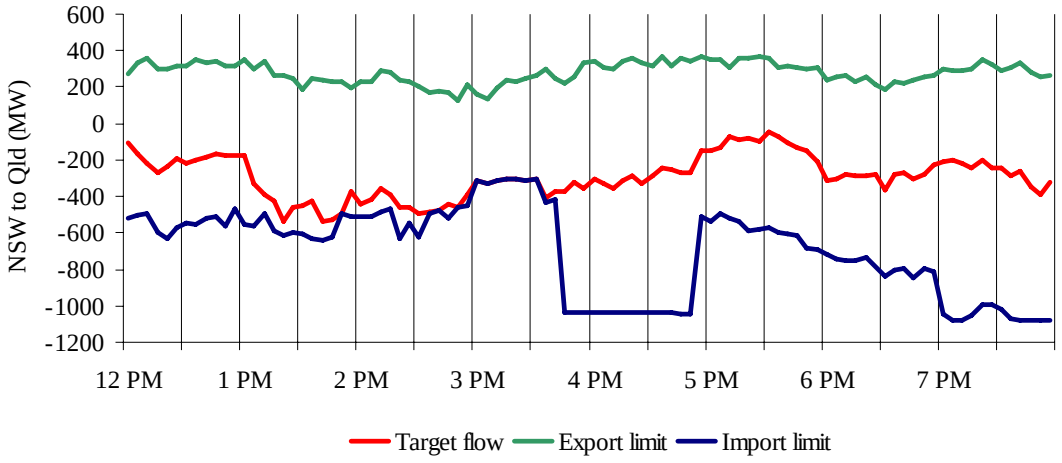


Figure 6: DirectLink interconnector target flows including import and export limits

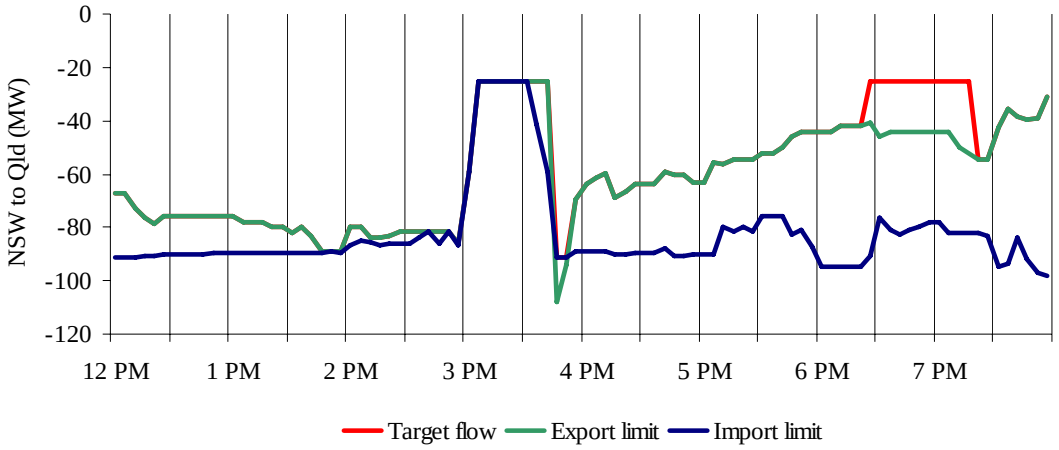


Figure 7: Snowy1 interconnector target flows including import and export limits

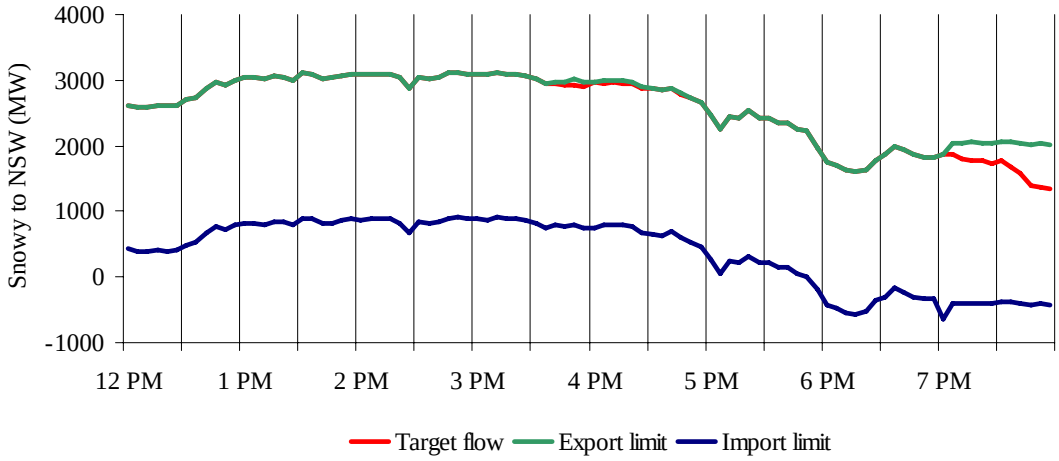
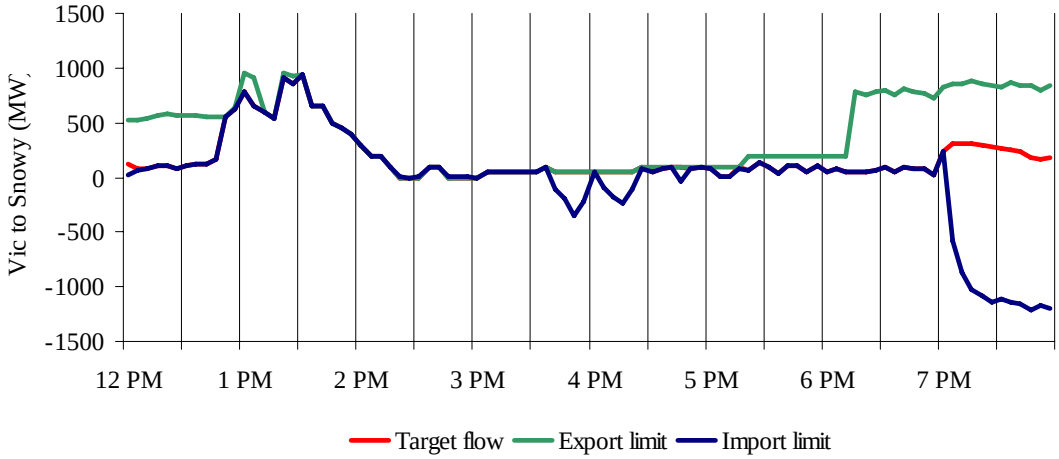


Figure 8:Vic-Snowy interconnector target flows including import and export limits



Rebidding - Queensland. Unit 4 at Tarong power station was scheduled to return from 6 am following an unplanned 24 hour outage. Modifications to its availability during its return saw, at times, as much as 216 MW less available capacity than forecast, all priced at below $15/MWh. The unit returned to full availability late in the evening.

From 7 am, network limitations between central and south Queensland restricted the availability of almost 400 MW of generation capacity in central Queensland. Between 9 am and midday, almost 3000 MW of capacity was shifted to prices of less than zero in central Queensland across the CS Energy, Callide Power, Stanwell and Enertrade portfolios.

There was no other significant rebidding in Queensland.

Rebidding - New South Wales. At 9 am Macquarie Generation rebid 410 MW of capacity at Bayswater from below $20/MWh to over $250/MWh. The rebid reason given was "expect load to vary from forecast". At 1 pm, this 410 MW of capacity, plus a further 320 MW that was priced at $14/MWh, was shifted into prices of more than $8000/MWh. The rebid reason given was "sensitivities have changed". Reductions in availability at Liddell made through rebids between 11 am and 1pm saw as much as 360 MW of available capacity priced at less than $50/MWh removed from the market. The rebid reasons given were "milling limits" and "condensate limits".

Between 1.30 pm and 3 pm, Eraring Energy reduced the available capacity across Eraring Power Station by a total of 340 MW. The rebid reasons given were "lake temperature management". This capacity had been priced at less than $100/MWh and remained unavailable until after 6 pm.

There was no other significant rebidding in New South Wales.

Rebidding – Snowy region. At 7.45 am, Snowy Hydro shifted 300 MW of capacity from prices of around $7500/MWh to less than $100/MWh. The rebid reasons given was "M:Prices highr then expectd: Bndshft down". At 9.18 am, 50 MW of capacity was shifted from prices of $42/MWh to $90/MWh. The rebid reason given was "M:Prices highr thn expectd: Bndshft dwn'.

At 10.10 am, 1150 MW of capacity at Murray was shifted from prices of $20/MWh and $33/MWh to zero. The rebid reason given was "Correct prev bid: Re aloc gen" . At the same time, 480 MW of capacity at Upper Tumut was shifted from zero to prices of $19/MWh and $33/MWh.

At 11.55 am, 160 MW of capacity at Lower Tumut was shifted from prices of around $7500/MWh to $42/MWh. The rebid reason given was "M:NSW Dema expctd highr thn F/C: Bndshft down". At the same time, 40 MW of capacity was shifted from Murray to Lower Tumut at prices of around $625/MWh. At 12.52 pm, 430 MW of capacity at Lower Tumut was shifted from prices of between $90/MWh and $635/MWh to prices around $7500/MWh. The rebid reason given was "M:Manage Snowy1 constraint:Bandshft up".

There was no other significant rebidding within Snowy.

Assessment

A combination of near record demand in New South Wales and rebidding, together with limited imports from Victoria, contributed to the price exceeding $5000/MWh.

Australian Energy Regulator
May 2006

Appendix A – Price setter

The following tables identify for each trading interval in which the spot price exceeded $5000/MWh, every five minute dispatch interval price and the generating units, as published in the market systems, involved in setting the energy price. This information is published by NEMMCO[2]. Also shown is the energy or ancillary service offer price involved in determining the dispatch price together with the quantity of that service and the contribution to the total energy price. Dispatch prices greater than $10 000/MWh are capped. The 30-minute spot price is the time weighted average of the six dispatch interval prices.

Thursday 2 February – Queensland 1.30 pm

Time	Dispatch price ($/MWh)	Participant	Unit	Service	Offer ($/MWh)	Marginal change	Portion ($/MWh)
13:05	$7,512.56	Eraring Energy	ER02	Raise reg	$0.07	-1.01	-$0.07
			ER02	Energy	$7,450.00	1.01	$7,510.41
		Macquarie Generation	BW02	Raise reg	$2.20	1.01	$2.22
13:10	$7,463.03	Delta Electricity	MM3	Energy	$7,400.00	1.01	$7,463.03
13:15	$7,302.79	Enertrade	GSTONE2	Raise reg	$1.00	0.69	$0.69
		Eraring Energy	ER01	Raise reg	$0.07	-0.69	-$0.05
			ER01	Energy	$7,450.00	0.98	$7,302.15
13:20	$7,185.14	Southern Hydro	EILDON1	Raise reg	$0.83	0.96	$0.80
		Eraring Energy	ER02	Raise reg	$0.07	-0.96	-$0.07
			ER02	Energy	$7,450.00	0.96	$7,184.41
13:25	$8,419.15	Snowy Hydro	GUTHEGA	Energy	$0.00	0.00	$0.00
			MURRAY	Energy	$0.00	0.04	$0.00
			TUMUT3	Energy	$7,539.69	1.12	$8,419.15
13:30	$204.87	Ecogen	NPS	Energy	$34.70	5.90	$204.87
			MURRAY	Energy	$0.00	-4.27	$0.00
Spot price	**$6347.92/MWh**						

Thursday 2 February – Queensland 2.00 pm

Time	Dispatch price ($/MWh)	Participant	Unit	Service	Offer ($/MWh)	Marginal change	Portion ($/MWh)
13:35	$605.25	Southern Hydro	DARTM1	Energy	$100.70	6.01	$605.25
			MURRAY	Energy	$0.00	-4.37	$0.00
13:40	$8,418.92	Snowy Hydro	GUTHEGA	Energy	$0.00	0.00	$0.00
			TUMUT3	Energy	$7,539.69	1.12	$8,418.92
			MURRAY	Energy	$0.00	0.04	$0.00
13:45	$9,230.22	Macquarie Generation	BW01	Energy	$9,644.90	0.96	$9,230.22
13:50	$8,173.89	Snowy Hydro	GUTHEGA	Energy	$0.00	0.00	$0.00
			TUMUT3	Energy	$7,539.69	1.08	$8,173.89
			MURRAY	Energy	$0.00	0.04	$0.00
13:55	$8,228.15	Snowy Hydro	GUTHEGA	Energy	$0.00	0.00	$0.00
			MURRAY	Energy	$0.00	0.04	$0.00
			TUMUT3	Energy	$7,539.69	1.09	$8,228.15

[2] NEMMCO first published details on how the price is determined, for every dispatch interval, in June 2004. Documentation of this process can be found at http://www.nemmco.com.au/dispatchandpricing/140-0036.htm

Time	Dispatch price ($/MWh)	Participant	Unit	Service	Offer ($/MWh)	Marginal change	Portion ($/MWh)
		TRUenergy					
14:00	$98.91	Yallourn Pty Ltd	YWPS2	Raise 60 sec	$0.37	0.38	$0.14
		CS Energy	SWAN_B_3	Raise 5 min	$1.20	-1.00	-$1.20
			SWAN_B_3	Raise 60 sec	$0.01	-0.38	$0.00
			SWAN_B_3	Raise 6 sec	$0.01	-0.38	$0.00
			SWAN_B_3	Energy	$98.00	1.00	$98.00
		Eraring Energy	ER02	Raise 6 sec	$0.45	0.38	$0.17
		Macquarie Generation	BW04	Raise 5 min	$1.80	1.00	$1.80
Spot price	**$5792.55/MWh**						

Thursday 2 February – Queensland 2.30 pm

Time	Dispatch price ($/MWh)	Participant	Unit	Service	Offer ($/MWh)	Marginal change	Portion ($/MWh)
14:05	$9,319.12	Delta Electricity	VP6	Energy	$9,650.01	0.97	$9,319.12
14:10	$9,133.20	Delta Electricity	VP5	Energy	$9,600.00	0.95	$9,133.20
14:15	$9,197.51	Delta Electricity	VP5	Energy	$9,600.00	0.96	$9,197.51
		Macquarie					
14:20	$9,365.79	Generation	BW01	Energy	$9,644.90	0.97	$9,365.79
14:25	$9,267.16	Delta Electricity	VP5	Energy	$9,600.00	0.97	$9,267.16
14:30	$8,660.83	Snowy Hydro	TUMUT3	Energy	$7,539.69	1.11	$8,349.53
			MURRAY	Energy	$7,440.00	0.04	$311.30
Spot price	**$9157.27/MWh**						

Thursday 2 February – Queensland 3.00 pm

Time	Dispatch price ($/MWh)	Participant	Unit	Service	Offer ($/MWh)	Marginal change	Portion ($/MWh)
14:35	$8,452.32	Snowy Hydro	UPPTUMUT	Energy	$7,464.72	1.12	$8,349.99
			MURRAY	Energy	$7,440.00	0.01	$102.33
14:40	$8,584.23	Snowy Hydro	TUMUT3	Energy	$7,539.69	1.10	$8,275.84
			MURRAY	Energy	$7,440.00	0.04	$308.38
14:45	$8,582.57	Snowy Hydro	TUMUT3	Energy	$7,539.69	1.10	$8,274.05
			MURRAY	Energy	$7,440.00	0.04	$308.53
14:50	$4,380.66	Tarong	W/HOE#1	Energy	$4,380.66	1.00	$4,380.66
		Macquarie					
14:55	$9,289.96	Generation	BW02	Energy	$9,794.97	0.95	$9,289.96
15:00	$299.84	Enertrade	OAKEY2	Energy	$299.84	1.00	$299.84
Spot price	**$6598.26/MWh**						

Thursday 2 February – Queensland 4.00 pm

Time	Dispatch price($/MWh)	Participant	Unit	Service	Offer ($/MWh)	Marginal change	Portion ($/MWh)
15:35	$4,380.66	Tarong	W/HOE#1	Energy	$4,380.66	1.00	$4,380.66
15:40	$98.00	CS Energy	SWAN_B_4	Energy	$98.00	0.44	$42.88
			SWAN_B_3	Energy	$98.00	0.44	$42.88
			SWAN_E	Energy	$98.00	0.13	$12.25
15:45	$8,346.64	Snowy Hydro	GUTHEGA	Energy	$0.00	0.00	$0.00
			TUMUT3	Energy	$7,539.69	1.11	$8,346.64
			MURRAY	Energy	$0.00	0.04	$0.00
15:50	$7,371.60	Tarong	W/HOE#1	Energy	$7,371.60	1.00	$7,371.60
15:55	$8,577.64	Snowy Hydro	MURRAY	Energy	$7,440.00	1.15	$8,577.64
16:00	$8,587.73	Macquarie Generation	BW03	Energy	$8,771.93	0.98	$8,587.73
Spot price	**$6227.05/MWh**						

Thursday 2 February – New South Wales 1.30 pm

Time	Dispatch price ($/MWh)	Participant	Unit	Service	Offer ($/MWh)	Marginal change	Portion ($/MWh)
13:05	$7,452.13	Eraring Energy	ER02	Raise reg	$0.07	-1.00	-$0.07
			ER02	Energy	$7,450.00	1.00	$7,450.00
		Macquarie Generation	BW02	Raise reg	$2.20	1.00	$2.20
13:10	$7,400.00	Delta Electricity	MM3	Energy	$7,400.00	1.00	$7,400.00
13:15	$7,450.65	Enertrade	GSTONE2	Raise reg	$1.00	0.70	$0.70
		Eraring Energy	ER01	Raise reg	$0.07	-0.70	-$0.05
			ER01	Energy	$7,450.00	1.00	$7,450.00
13:20	$7,450.76	Southern Hydro	EILDON1	Raise reg	$0.83	1.00	$0.83
		Eraring Energy	ER02	Raise reg	$0.07	-1.00	-$0.07
			ER02	Energy	$7,450.00	1.00	$7,450.00
13:25	$8,786.89	Snowy Hydro	GUTHEGA	Energy	$0.00	0.00	$0.00
			MURRAY	Energy	$0.00	0.04	$0.00
			TUMUT3	Energy	$7,539.69	1.17	$8,786.89
13:30	$220.34	Ecogen	NPS	Energy	$34.70	6.35	$220.34
		Snowy Hydro	MURRAY	Energy	$0.00	-4.59	$0.00
Spot price	**$6460.13/MWh**						

Thursday 2 February – New South Wales 2.00 pm

Time	Dispatch price ($/MWh)	Participant	Unit	Service	Offer ($/MWh)	Marginal change	Portion ($/MWh)
13:35	$637.01	Southern Hydro	DARTM1	Energy	$100.70	6.33	$637.01
			MURRAY	Energy	$0.00	-4.60	$0.00
13:40	$8,845.91	Snowy Hydro	GUTHEGA	Energy	$0.00	0.00	$0.00
			TUMUT3	Energy	$7,539.69	1.17	$8,845.91
			MURRAY	Energy	$0.00	0.04	$0.00
13:45	$9,644.90	Macquarie Generation	BW01	Energy	$9,644.90	1.00	$9,644.90
13:50	$8,783.70	Snowy Hydro	GUTHEGA	Energy	$0.00	0.00	$0.00
			TUMUT3	Energy	$7,539.69	1.16	$8,783.70
			MURRAY	Energy	$0.00	0.04	$0.00
13:55	$8,784.72	Snowy Hydro	GUTHEGA	Energy	$0.00	0.00	$0.00
			MURRAY	Energy	$0.00	0.04	$0.00
			TUMUT3	Energy	$7,539.69	1.17	$8,784.72

Time	Dispatch price ($/MWh)	Participant	Unit	Service	Offer ($/MWh)	Marginal change	Portion ($/MWh)
14:00	$8,774.97	Snowy Hydro	GUTHEGA	Energy	$0.00	0.00	$0.00
			MURRAY	Energy	$0.00	0.04	$0.00
			TUMUT3	Energy	$7,539.69	1.16	$8,774.97
Spot price	**$7578.53/MWh**						

Thursday 2 February – New South Wales 2.30 pm

Time	Dispatch price ($/MWh)	Participant	Unit	Service	Offer ($/MWh)	Marginal change	Portion ($/MWh)
14:05	$9,650.01	Delta Electricity	VP6	Energy	$9,650.01	1.00	$9,650.01
14:10	$9,600.00	Delta Electricity	VP5	Energy	$9,600.00	1.00	$9,600.00
14:15			VP5	Energy	$9,600.00	1.00	$9,600.00
14:20	$9,644.90	Macquarie Generation	BW01	Energy	$9,644.90	1.00	$9,644.90
14:25	$9,600.00	Delta Electricity	VP5	Energy	$9,600.00	1.00	$9,600.00
14:30	$9,112.46	Snowy Hydro	TUMUT3	Energy	$7,539.69	1.17	$8,784.92
			MURRAY	Energy	$7,440.00	0.04	$327.53
Spot price	**$9534.56/MWh**						

Thursday 2 February – New South Wales 3.00 pm

Time	Dispatch price ($/MWh)	Participant	Unit	Service	Offer ($/MWh)	Marginal change	Portion ($/MWh)
14:35	$8,903.44	Snowy Hydro	UPPTUMUT	Energy	$7,464.72	1.18	$8,795.65
			MURRAY	Energy	$7,440.00	0.01	$107.79
14:40	$9,108.08	Snowy Hydro	TUMUT3	Energy	$7,539.69	1.16	$8,780.87
			MURRAY	Energy	$7,440.00	0.04	$327.20
14:45	$9,113.52	Snowy Hydro	TUMUT3	Energy	$7,539.69	1.17	$8,785.91
			MURRAY	Energy	$7,440.00	0.04	$327.61
14:50	$8,781.61	Snowy Hydro	GUTHEGA	Energy	$0.00	0.00	$0.00
			TUMUT3	Energy	$7,539.69	1.16	$8,781.61
			MURRAY	Energy	$0.00	0.04	$0.00
14:55	$9,794.97	Macquarie Generation	BW02	Energy	$9,794.97	1.00	$9,794.97
15:00	$9,600.00	Delta Electricity	VP5	Energy	$9,600.00	1.00	$9,600.00
Spot price	**$9216.94/MWh**						

Thursday 2 February – New South Wales 3.30 pm

Time	Dispatch price ($/MWh)	Participant	Unit	Service	Offer ($/MWh)	Marginal change	Portion ($/MWh)
15:05		Delta Electricity	VP5	Energy	$9,600.00	1.00	$9,600.00
15:10	$9,986.02	Delta Electricity	WW7	Energy	$9,986.02	1.00	$9,986.02
15:15	$9,902.77	Macquarie Generation	BW04	Energy	$9,902.77	1.00	$9,902.77
15:20	$9,644.90	Macquarie Generation	BW01	Energy	$9,644.90	1.00	$9,644.90
15:25	$9,650.01	Delta Electricity	VP6	Energy	$9,650.01	1.00	$9,650.01
15:30			VP6	Energy	$9,650.01	1.00	$9,650.01
Spot price	**$9738.95/MWh**						

Thursday 2 February – New South Wales 4.00 pm

Time	Dispatch price ($/MWh)	Participant	Unit	Service	Offer ($/MWh)	Marginal change	Portion ($/MWh)
15:35	$9,600.00	Delta Electricity	VP5	Energy	$9,600.00	1.00	$9,600.00
15:40	$9,105.86	Snowy Hydro	TUMUT3	Energy	$7,539.69	1.16	$8,778.83
			MURRAY	Energy	$7,440.00	0.04	$327.03
15:45	$8,722.97	Snowy Hydro	GUTHEGA	Energy	$0.00	0.00	$0.00
			TUMUT3	Energy	$7,539.69	1.16	$8,722.97
			MURRAY	Energy	$0.00	0.04	$0.00
15:50	$7,641.07	Tarong	W/HOE#1	Energy	$7,371.60	1.04	$7,641.07
15:55	$8,876.41	Snowy Hydro	MURRAY	Energy	$7,440.00	1.19	$8,876.41
16:00	$8,771.93	Macquarie Generation	BW03	Energy	$8,771.93	1.00	$8,771.93
Spot price	**$8786.37/MWh**						

Thursday 2 February – Snowy 3.00 pm

Time	Dispatch price ($/MWh)	Participant	Unit	Service	Offer ($/MWh)	Marginal change	Portion ($/MWh)
14:35	$7,440.00	Snowy Hydro	MURRAY	Energy	$7,440.00	1.00	$7,440.00
14:40			MURRAY	Energy	$7,440.00	1.00	$7,440.00
14:45			MURRAY	Energy	$7,440.00	1.00	$7,440.00
14:50	$0.00	Snowy Hydro	GUTHEGA	Energy	$0.00	0.04	$0.00
			MURRAY	Energy	$0.00	0.96	$0.00
14:55	$7,440.00	Snowy Hydro	MURRAY	Energy	$7,440.00	1.00	$7,440.00
15:00			MURRAY	Energy	$7,440.00	1.00	$7,440.00
Spot price	**$6200.00/MWh**						

Thursday 2 February – Snowy 3.30 pm

Time	Dispatch price ($/MWh)	Participant	Unit	Service	Offer ($/MWh)	Marginal change	Portion ($/MWh)
15:05		Snowy Hydro	MURRAY	Energy	$7,440.00	1.00	$7,440.00
15:10			MURRAY	Energy	$7,440.00	1.00	$7,440.00
15:15			MURRAY	Energy	$7,440.00	1.00	$7,440.00
15:20			MURRAY	Energy	$7,440.00	1.00	$7,440.00
15:25			MURRAY	Energy	$7,440.00	1.00	$7,440.00
15:30			MURRAY	Energy	$7,440.00	1.00	$7,440.00
Spot price	**$7440.00/MWh**						

Thursday 2 February – Snowy 4.00 pm

Time	Dispatch price ($/MWh)	Participant	Unit	Service	Offer ($/MWh)	Marginal change	Portion ($/MWh)
15:35		Snowy Hydro	MURRAY	Energy	$7,440.00	1.00	$7,440.00
15:40			MURRAY	Energy	$7,440.00	1.00	$7,440.00
15:45	$0.00	Snowy Hydro	GUTHEGA	Energy	$0.00	0.04	$0.00
			MURRAY	Energy	$0.00	0.96	$0.00
15:50	$6,361.84	Tarong	W/HOE#1	Energy	$7,371.60	0.86	$6,361.84
15:55	$7,440.00	Snowy Hydro	MURRAY	Energy	$7,440.00	1.00	$7,440.00
16:00	$7,301.80	Macquarie Generation	BW03	Energy	$8,771.93	0.83	$7,301.80
Spot price	**$5997.27/MWh**						

Offer prices. Figures 9 to 14 present the capacity offered into the market within a series of price thresholds by any participants with capacity at prices greater than $5000/MWh in Queensland, New South Wales and Snowy during the high priced periods. Those participants are: Enertrade and Tarong Energy in Queensland; Macquarie Generation and Delta Electricity in New South Wales; and Snowy Hydro. These figures display the capacity offered into the market for each 30 minute trading interval for the day. Spot price and dispatched generation are overlaid. Figures 13 and 14 divide Snowy Hydro into generation at Murray and Lower Tumut to highlight the amount of capacity priced at zero at Murray.

Figure 9: Enertrade closing bid prices, dispatch and region price

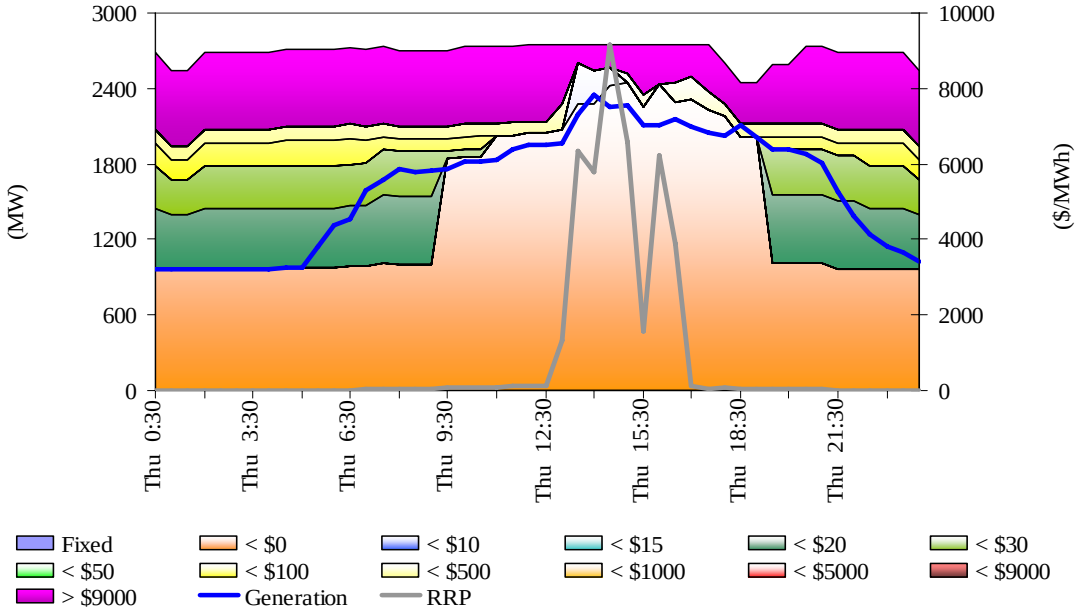


Figure 10: Tarong Energy closing bid prices, dispatch and region price

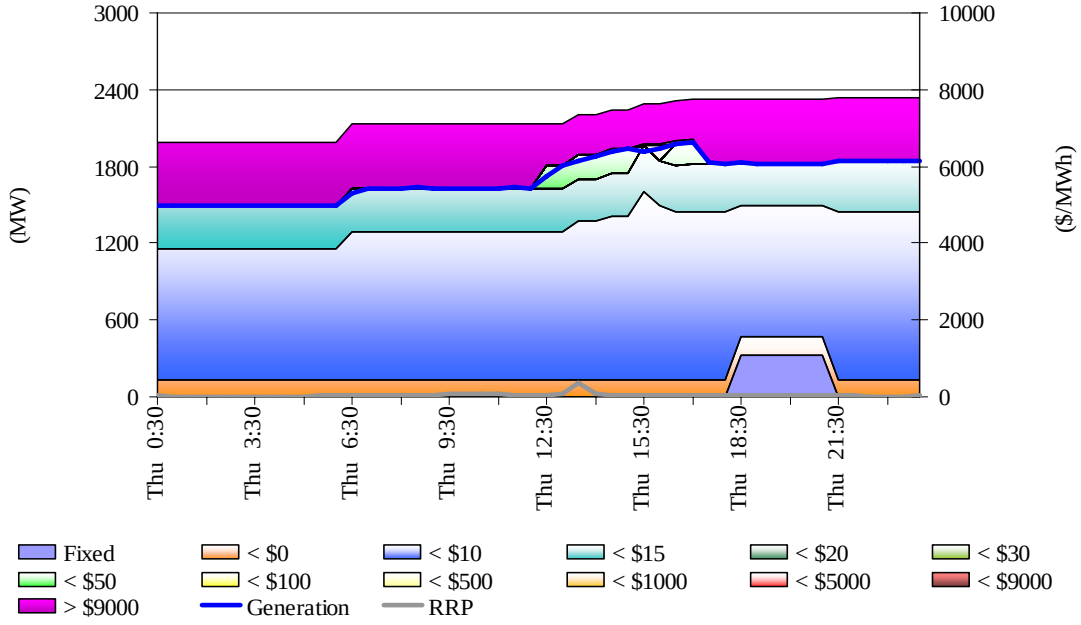


Figure 11: Macquarie Generation closing bid prices, dispatch and region price.

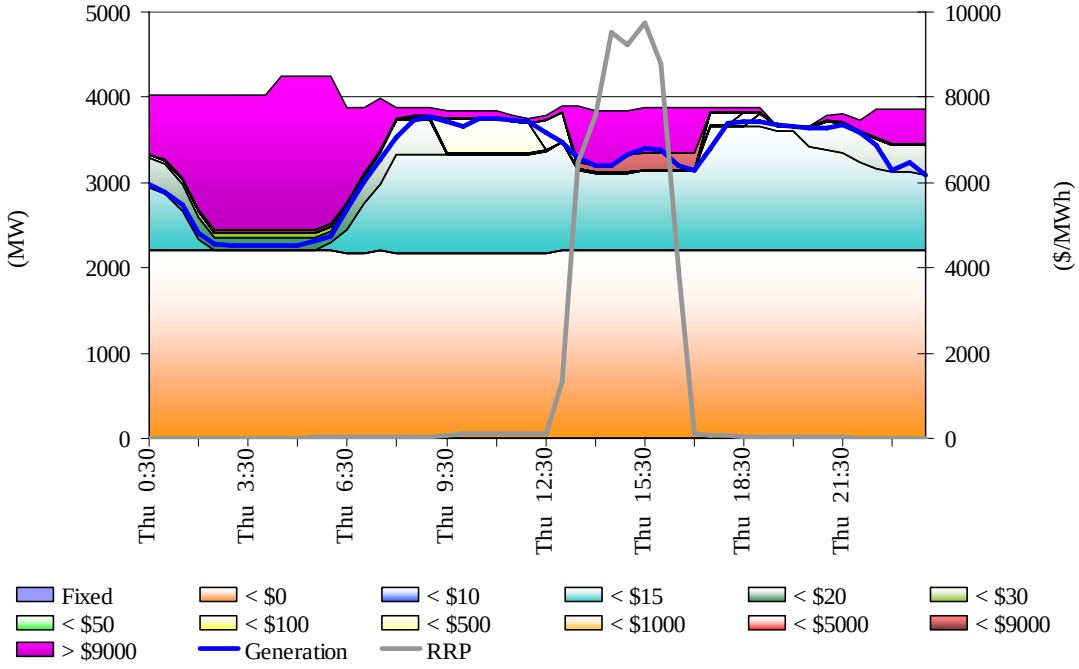


Figure 12: Delta Electricity closing bid prices, dispatch and region price.

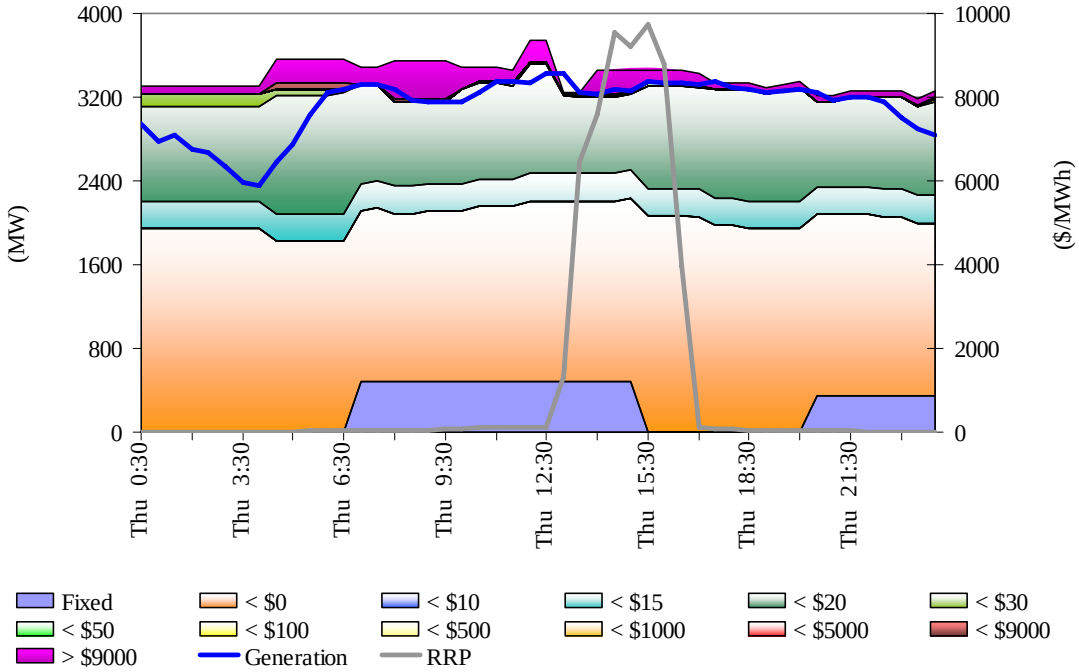


Figure 13: Snowy Hydro - Murray closing bid prices, dispatch and region price.

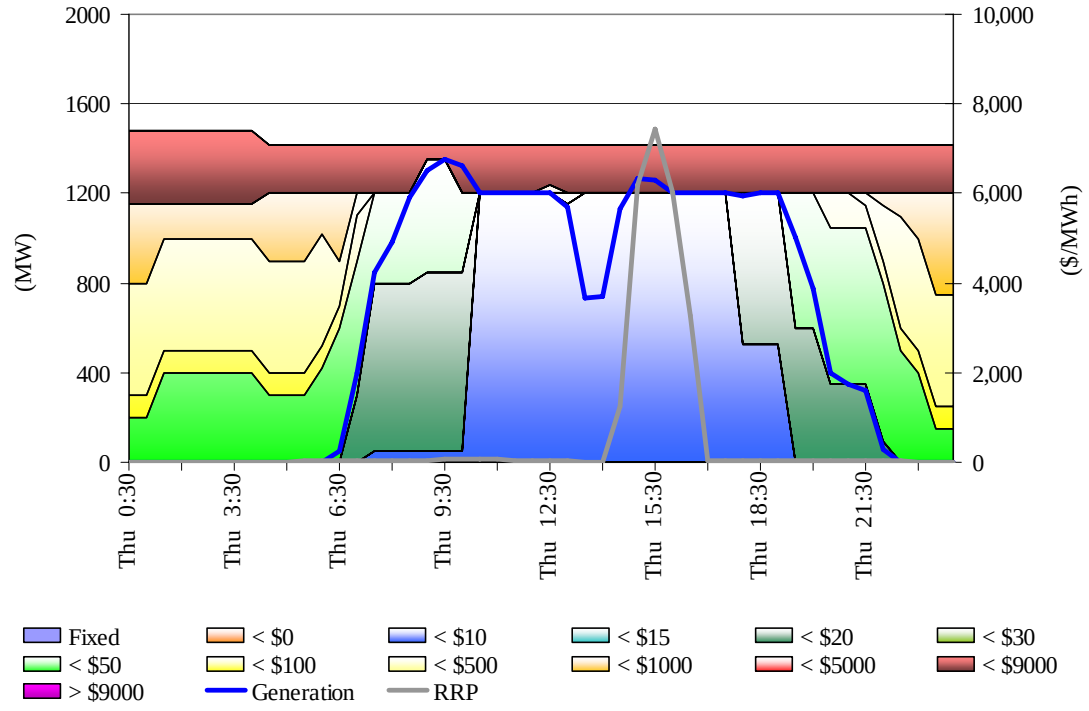


Figure 14: Snowy Hydro – Tumut 3 and Upper Tumut closing bid prices, dispatch and region price.