Spot prices greater than $5000/MWh

AUSTRALIAN ENERGY REGULATOR

Victoria and South Australia 16 January 2007

Introduction

On 16 January, high temperatures across New South Wales, Victoria and South Australia, saw the demand for electricity across the National Electricity Market reach a record high. A new record also occurred in Victoria. The record demands saw the spot price exceed $5000/MWh in Victoria and South Australia.

At 3.02 pm[1], bushfires in the vicinity of the Snowy interconnector caused it to automatically open, which led to the interruption of around 2600 MW of customer load in Victoria.

The AER is responsible for monitoring compliance with, and investigating possible breaches of, the National Electricity Law, Regulations and the National Electricity Rules (Rules). Clause 3.13.7(d) of the Rules requires the AER to prepare and publish a report within 20 business days of the end of a week in which the spot price exceeded $5000/MWh. 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.

Because of the complexity of events on 16 January, this report (pursuant to Clause 3.13.7(d)) provides data for information only and no AER findings or conclusions are presented at this time.

Given the significance of this loss of load event and its implications on the security and reliability of supply and pricing outcomes, the AER is also undertaking a broader and more detailed investigation in order to determine whether registered participants and NEMMCO complied with the Rules. The AER aims to finalise its investigations by the middle of the year.

This report also deals predominantly with market outcomes prior to the interconnector failure at 3.02 pm. The events after 3.02 pm will be addressed in detail as part of the AER's broader investigation.

[1] All times in this report are in market time (or Eastern Standard Time). 3 pm market time is equivalent to 4 pm eastern summer time.

Summary of events

On 16 January, high temperatures across New South Wales, Victoria and South Australia, saw national demand reach a new record of 31 720 MW at 3 pm. A new record of 9012 MW occurred in Victoria at the same time. In South Australia demand peaked at 2813 MW soon after, only 60 MW short of the record.

The record demand in Victoria and the commercial decision by some Victoria generators to price a significant amount of their capacity at close to the price cap, resulted in significant imports from neighbouring regions with all of the transmission interconnectors into Victoria at near full capacity by 3 pm. Maximum exports from South Australia saw generation dispatch in South Australia exceed 3000 MW for the first time ever. As a result, the spot price in Victoria exceeded $5000/MWh at 2.30 pm and in both Victoria and South Australia at 3 pm.

At 3.02 pm, bushfires in north east Victoria and in the vicinity of the fully loaded transmission lines from the Snowy region caused a number of those lines to automatically open, severing the connection to Melbourne. As a result around 1700 MW of imports were lost. The disturbance also triggered a number of other transmission lines to automatically disconnect including the South Australia to Victoria interconnector, resulting in a further loss of 300 MW of supply to Victoria. The resulting supply-demand imbalance caused the power system frequency to fall, and the operation of automatic emergency control systems, which saw around 2600 MW of customer load in Victoria interrupted.

The process to restore the interrupted load began immediately. The Victoria to South Australia interconnector was reconnected at 3.42 pm with all load in Victoria restored by 6.15 pm. The interconnection between Melbourne and the Snowy region was restored around 11.30 pm.

Spot prices remained high through the afternoon, exceeding the $5000/MWh threshold at 4 pm in South Australia. At 4.20 pm, NEMMCO overrode the price in Victoria and set the price to $10 000/MWh for the next two hours. Following the disturbance, NEMMCO directed a number of participants to assist in restoring the security of the power system.

Spot price outcomes

Figure 1 shows the spot price for Victoria and South Australia during the afternoon. The trading intervals when the price exceeded $5000/MWh are highlighted. Three of these occurrences were prior to the disturbance at 3.02 pm.

The power system disturbance significantly affected the electricity market, and led to very unusual and complex pricing outcomes. At 4 pm, for example, the spot price in South Australia reached $7813/MWh. The region was isolated from the rest of the market for most of this trading interval, with local requirements for frequency control ancillary services that significantly impacted market outcomes. At 4.20 pm, NEMMCO overrode the spot price in Victoria setting the price to $10,000/MWh for the next two hours.

The generators involved in setting the spot price for those trading intervals where the spot price exceeded $5000/MWh, and how that price was determined by the market systems are detailed in **Appendix A**.

The balance of this report considers the factors that contributed to high spot prices including; demand levels, variations in demand from levels forecast by NEMMCO; generator offers and rebidding; and changes to network availability.

Figure 1: Spot price in Victoria and South Australia

Time	Victoria ($/MWh)	South Australia ($/MWh)
1:00 pm	1,292.96	1,220.73
1:30 pm	2,250.22	2,112.22
2:00 pm	2,205.56	1,983.63
2:30 pm	8,598.99	4,336.99
3:00 pm	9,585.48	6,048.52
Loss of connection between north east Victoria and Melbourne		
3:30 pm	1,653.89	4,450.37
4:00 pm	4,173.27	7,813.10
4:30 pm	3,502.92	311.71
5:00 pm	10,000.00	3,826.80
5:30 pm	10,000.00	2,412.17
6:00 pm	10,000.00	279.08
6:30 pm	6,500.00	3,119.65

Actual and forecast demand

On 16 January demand in Victoria reached a new record of 9012 MW at 3 pm. Whilst high, this is below the summer extreme forecast demand by NEMMCO[2] and within available capacity taking into account interconnection capacity. Demand levels in Victoria and South Australia are shown in figure 2.

NEMMCO produces 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.

Differences between forecast and actual demand can have significant impacts on market outcomes. For example, peaking plant typically takes around 10-15 minutes to start and there are significant start up costs. These generators rely on NEMMCO's forecasts in making decisions whether and when to turn on.

Victorian demand at 3.00 pm was 600 MW higher than forecast four hours ahead and 500 MW higher than forecast twelve hours ahead. In South Australia demand was within 100 MW of forecast on the same basis. Figure 2 compares the forecast demands and associated forecast prices for 2.30 pm and 3 pm in Victoria with the actual outcomes. Figure 3 presents the same comparison for 3 pm in South Australia.

Figure 2: Actual and forecast demand and spot price - Victoria

Tuesday 2:30 pm	Actual	4 hr forecast	12 hr forecast
Demand (MW)	8922	8331	8424
Spot Price ($MW/h)	8598.99	106.05	239.66

Tuesday 3:00 pm	Actual	4 hr forecast	12 hr forecast
Demand (MW)	9012	8455	8443
Spot Price ($MW/h)	9585.48	135.32	278.74

[2] The peak demand was around 1200 MW lower than the extreme 10% probability of exceedance summer forecast of 10 234 MW published in the 2006 Statement of Opportunities.

Figure 3: Actual and forecast demand and spot price - South Australia

Tuesday 3:00 pm	Actual	4 hr forecast	12 hr forecast
Demand (MW)	2750	2762	2800
Spot Price ($MW/h)	6048.52	145.07	289.14

Generator offers and rebidding

Victoria has 8470 MW[3] of available generating capacity during summer, while South Australia has 3260 MW. On 16 January, 7343 MW of capacity in Victoria was presented to the market at 3 pm with 3140 MW of capacity presented in South Australia. Figure 4 details the generation capacity that was not presented on the day in Victoria.

Figure 4: Capacity in Victoria not presented

Participant	Capacity (MW)	Comment
Energy Brix		
Morwell unit two	46	Not available, returned to service 26 January.
Eraring Energy		
Hume	58	Not available, had not run since 22 November 2006. Hume is a hydro plant and has low dam levels.
AGL Hydro		
Dartmouth	156	Not available, had not run since 24 December 2006. Dartmouth is a hydro plant and has low dam levels.
TRUenergy		
Yallourn unit four	355	Shutdown on 10 January for a planned outage. Returned to service on 20 January.
Ecogen		
Newport	475	Did not bid into the market. Came on at 5 pm following a direction from NEMMCO.
Other	22	
Capacity not presented	**1112**	(13 per cent of installed capacity)

In South Australia around 120 MW (or 4 per cent) of the total capacity in South Australia was not presented during the high priced period. The most significant reduction was at Flinders Power's Playford power station which offered an availability of 155 MW for the 3 pm trading interval, 85 MW less than its summer rating.

Victoria

As well as producing demand forecasts, NEMMCO produces price forecasts for each 30 minute trading interval. Initial price forecasts[4] for the afternoon of 16 January in Victoria peaked at around $9500/MWh. This fell to around $625/MWh following rebids at 3 pm on 15 January by International Power and Origin Energy in South Australia. These rebids shifted capacity at Dry Creek, Mintaro, Quarantine and Ladbroke Grove into lower prices.

At 4.30 pm on 15 January, LYMMCO rebid 335 MW of capacity across three of the four units at Loy Yang A, from prices below $25/MWh to above $7300/MWh. The rebid applied between 12.30 pm and 5 pm on 16 January. The rebid reason given was "Change in PD at 1503".

[3] Based on the 2006 Statement of Opportunities.

[4] The first price forecasts were published at 1 pm the day before (15 January).

At 4.56 pm on 15 January, AGL Hydro shifted 135 MW of capacity at Somerton from prices above $9000/MWh to zero. The rebid reason given was “Price change in market::cover position”.

On 16 January TRUenergy made a number of rebids from 10.48 am, which reduced the availability of Yallourn unit one by up to 100 MW. The rebid reasons given were “Vacuum limit::Reduce availability”. TRUenergy, through its initial bids the day before, had offered 340 MW or a third of the capacity of Yallourn power station at prices greater than $9000/MWh between 11 am and 5.30 pm.

Over a number of rebids throughout the morning, International Power increased the availability of Hazelwood. In the four hours leading to 3 pm, an additional 100 MW of capacity was added at low prices. The rebid reasons related to the removal of a number of plant limits and included “Mill limit”, Boiler structure limit”, “Air heater limit”, “Firing plant limit” and “Plant limit relieved”.

At 1.24 pm, AGL Hydro shifted 57 MW of capacity at Eildon from prices of less than $100/MWh to around $4000/MWh, effective for the next hour. The rebid reason given was “Portfolio optimisation”.

South Australia

At 1.54 pm, the previous day, International Power rebid 144 MW of capacity at Dry Creek from prices above $9000/MWh to below $800/MWh. The rebid reason given was “Response to PD13:50”.

At 2.52 pm, the previous day, Origin Energy rebid 161 MW of capacity across its portfolio from prices of $9000/MWh and above to zero. The rebid reason given was “Change in PDS”.

At 1.35 pm on 16 January, Infratil rebid 50 MW of capacity at Angaston from prices of around $260/MWh to zero. The rebid reason given was “Plant limitations::changed energy band”.

Over two rebids from 2.30 pm, TRUenergy shifted 560 MW of capacity at Torrens Island from higher prices to below zero. A further 110 MW of capacity, which had previously been priced at $280/MWh and $9000/MWh, was repriced at $145/MWh. The rebid reason given was “Market conditions-Gen response to PD conditions @14.30”.

Rebidding following the loss of interconnector and subsequent interruption will be addressed in the AER’s investigation.

Figure 5 shows, for the trading intervals where the spot price was greater than $5000/MWh in Victoria and South Australia, the available generating capacity in each region. The figure compares this with the amount of available capacity forecast four and twelve hours ahead of dispatch. The change in the amount of capacity offered at prices less than the forecast price calculated four hours ahead of dispatch is also included.

Figure 5: Actual and forecast capacity and spot price

Victoria

Tuesday 2.30 pm	Actual	4 hr forecast	12 hr forecast
Capacity (MW)			
total	7358	7461	7522
priced at less than the forecast price of $106.05	6322	6406	
Spot price ($/MWh)	8598.99	106.05	

Tuesday 3 pm	Actual	4 hr forecast	12 hr forecast
Capacity (MW)			
total	7343	7453	7522
priced at less than the forecast price of $135.32	6313	6398	
Spot price ($/MWh)	9585.48	135.32	

South Australia

Tuesday 3 pm	Actual	4 hr forecast	12 hr forecast
Capacity (MW)			
Total	3089	3163	3195
priced at less than the forecast price of $145.07	2988	2688	
Spot price ($/MWh)	6048.52	145.07	

Of the 7343 MW of capacity in Victoria presented to the market during the trading interval ending 3 pm, there was 1020 MW or 14 per cent priced at more than $5000/MWh.

Of the 3090 MW of capacity in South Australia presented to the market during the trading interval ending 3 pm, there was 48 MW or 2 per cent priced at more than $5000/MWh.

The closing bids for all participants in Victoria and South Australia with capacity priced at or above $5000/MWh during this period are presented in Appendix B.

Changes to network availability

Combined flows into Victoria were between 350 MW and 500 MW higher than forecast four and twelve hours ahead for the 2.30 pm and 3 pm trading intervals, reflecting the significantly higher than forecast demand. Actual flows across all interconnectors into Victoria (across Snowy, Heywood and Basslink) were approaching their maximum capabilities. Murraylink was out of service.

Flows were forecast from Victoria into South Australia both four and twelve hours ahead for the 3 pm trading interval. Actual flows, however, were in the opposite direction averaging 272 MW into Victoria for the trading interval.

Figure 6 compares the actual combined flows and interconnector limits into Victoria and South Australia, with those forecast four and twelve hours ahead of dispatch. Figure 7 and 8 show the 30-minute flows and limits into Victoria and South Australia respectively.

The large step changes in flows over the 3.30 pm trading interval reflect the loss of the interconnectors at 3.02 pm. The period where the spot price was greater than $5000/MWh is highlighted.

Figure 6: Actual and forecast flow and limits

Victoria

Tuesday 2:30 pm	Actual	4 hr forecast	12 hr forecast
Combined import limit	2518	2588	2508
Combined flow into Vic	2508	2001	2074

Tuesday 3:00 pm	Actual	4 hr forecast	12 hr forecast
Combined import limit	2481	2638	2508
Combined flow into Vic	2453	2132	2093

South Australia

Tuesday 3:00 pm	Actual	4 hr forecast	12 hr forecast
Import limit	460	460	460
Flow into SA	-272	206	115
Export limit	-300	-300	-300

Figure 7: Combined flow and limits into Victoria

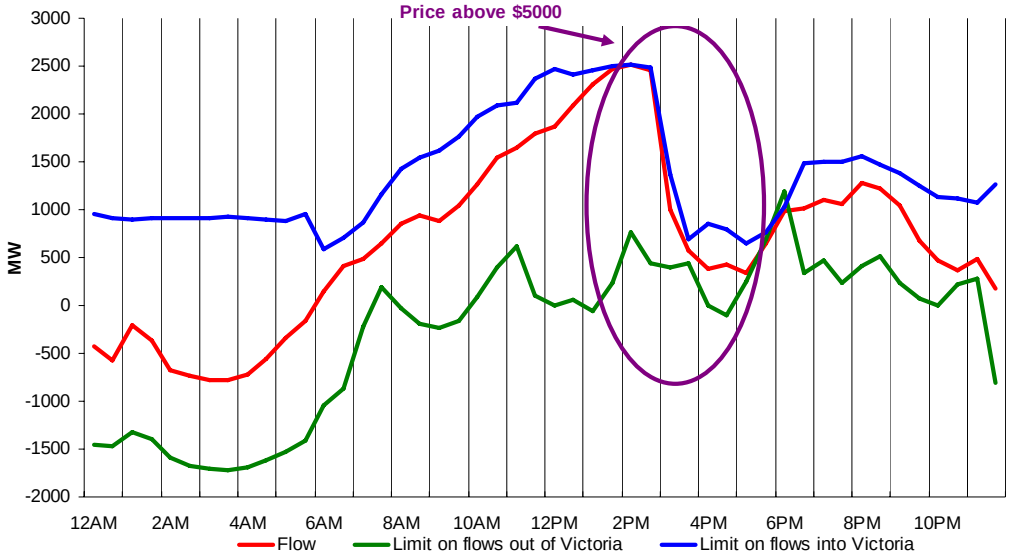
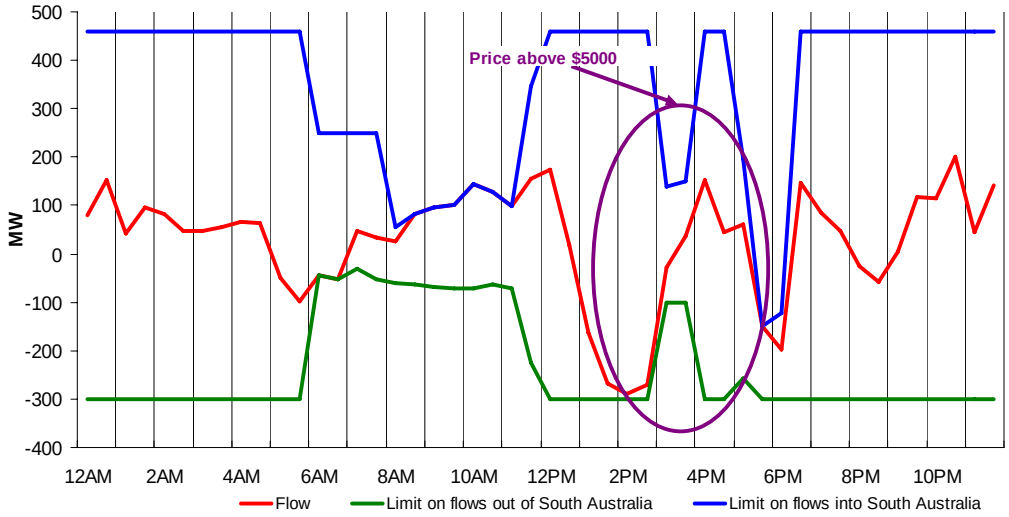


Figure 8: Flow and limits into South Australia



Assessment

On 16 January the spot price exceeded $5000/MWh in Victoria at 2.30 pm and in both Victoria and South Australia at 3 pm. A number of factors contributed.

Demand in Victoria peaked at a new record of 9012 MW and was close to record levels in South Australia. Peak demand in Victoria was also 600 MW higher than forecast four hours ahead and 500 MW higher than forecast twelve hours ahead.

Up to 1100 MW of generator capacity, including 200 MW of Victorian hydro plant, 400 MW of coal plant at Yallourn and Morwell on maintenance, and 475 MW at Newport, was not offered into the market. NEMMCO directed Newport to generate later in the afternoon. Rebidding the previous day by Loy Yang Management Co saw 335 MW of capacity at Loy Yang A repriced to above $5000/MWh.

After the loss of the interconnection between Melbourne and the Snowy region prices remained high in Victoria and South Australia until 6.30 pm. NEMMCO overrode the price in Victoria setting it to $10 000/MWh from 4.20 pm for the next two hours.

The AER is investigating this event in more detail to assess whether registered participants and NEMMCO complied with the National Electricity Rules, and is proposing to release its report by the middle of the year. The investigation is focussed on:

- the obligations of participants and NEMMCO with respect to power system security;
- the use of power system security directions by NEMMCO;
- market pricing outcomes, including the overriding of the price by NEMMCO, and pricing during the period of directions;
- market dispatch, including the appropriate use of network constraints;
- compliance by participants with dispatch instructions;
- the technical performance of generators
- the technical performance of the transmission network;
- the frequency control ancillary service markets; and
- performance of ancillary service providers.

Australian Energy Regulator
February 2007

The following table identifies the trading interval in which the spot price exceeded $5000/MWh. Each five minute dispatch interval price and the generating units involved in setting the energy price, as published in the market systems are shown. This information is published by NEMMCO[5]. 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. The 30-minute spot price is the time weighted average of the six dispatch interval prices.

Tuesday 16 January – South Australia 3 pm

Time	Dispatch price	Participant	Unit	Service	Offer price	Marginal change	Contribution
14:35	$9,004.50	TRUenergy	TORRA1	Energy	$9,004.50	0.20	$1,800.90
		TRUenergy	TORRA3	Energy	$9,004.50	0.20	$1,800.90
		TRUenergy	TORRB1	Energy	$9,004.50	0.20	$1,800.90
		TRUenergy	TORRB2	Raise 6 sec	$0.50	-0.40	-$0.20
		TRUenergy	TORRB2	Energy	$9,004.50	0.20	$1,800.90
		TRUenergy	TORRB4	Energy	$9,004.50	0.20	$1,800.90
		TRUenergy	TORRB4	Raise 6 sec	$0.50	0.40	$0.20
14:40	$8,750.29	Ecogen	JLB01	Energy	$9,605.72	0.91	$8,750.29
14:45	$8,657.63	Ecogen	JLA03	Energy	$9,505.67	0.46	$4,328.82
		Ecogen	JLA04	Energy	$9,505.67	0.46	$4,328.82
14:50	$699.98	International Power	DRYCGT1	Energy	$699.98	1.00	$699.98
14:55	$699.98	International Power	DRYCGT1	Energy	$699.98	1.00	$699.98
15:00	$8,478.75	Ecogen	JLA03	Energy	$9,505.67	0.45	$4,239.38
		Ecogen	JLA04	Energy	$9,505.67	0.45	$4,239.38
Spot price	**$6048.52/MWh**						

Tuesday 16 January – South Australia 4 pm

Time	Dispatch price	Participant	Unit	Service	Offer price	Marginal change	Contribution
15:35	$10,000.00	International Power	PPCCGT	Energy	$10,000.00	1.00	$10,000.00
15:40	$10,000.00	International Power	PPCCGT	Energy	$10,000.00	1.00	$10,000.00
15:45	$10,000.00	International Power	PPCCGT	Energy	$10,000.00	1.00	$10,000.00
15:50	$10,000.00	International Power	PPCCGT	Energy	$10,000.00	1.00	$10,000.00
15:55	$4,732.48	National Grid	Basslink	Energy	$0.01	1.07	$0.01
		Flinders Power	NPS1	Lower 6 sec	$40.00	-1.07	-$42.75
		International Power	LOYYB1	Lower 60 sec	$3.62	-1.07	-$3.87
		International Power	LOYYB2	Raise 6 sec	$4,567.90	0.22	$1,005.44
		International Power	LOYYB2	Raise 60 sec	$4,567.90	1.07	$4,881.46
		Hydro Tasmania	CETHANA	Lower reg	$10.00	1.17	$11.69
		Hydro Tasmania	CETHANA	Energy	-$999.88	1.10	-$1,100.42
		Hydro Tasmania	CETHANA	Raise 6 sec	$1.00	-0.22	-$0.22
		Hydro Tasmania	CETHANA	Raise 5 min	$1.00	-1.07	-$1.07
		Hydro Tasmania	JBUTTERS	Raise 60 sec	$1.00	-1.07	-$1.07
		Hydro Tasmania	LI_WY_CA	Lower 6 sec	$1.50	1.07	$1.60
		Hydro Tasmania	POAT110	Lower reg	$15.00	-1.17	-$17.54
		Vic Power	PTH01	Raise 5 min	$9,999.00	1.07	$10,685.37
		TRUenergy	TORRB4	Lower 5 min	$9,999.75	-1.07	-$10,686.17
16:00	$2,146.13	International Power	LOYYB1	Raise 6 sec	$1,987.65	1.04	$2,058.15
		Southern Hydro	WKIEWA1	Raise 6 sec	$0.82	-1.04	-$0.85
		Southern Hydro	WKIEWA1	Energy	$85.79	1.04	$88.83
Spot price	**$7813.10/MWh**						

[5] 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

Tuesday 16 January – Victoria 2.30 pm

Time	Dispatch price	Participant	Unit	Service	Offer price	Marginal change	Contribution
14:05	$4,831.94	Snowy Hydro	MURRAY	Energy	$0.00	-0.20	$0.00
		AGL Hydro	EILDON1	Energy	$4,123.75	1.17	$4,831.94
14:10	$7,270.41	Macquarie Generation	BW02	Energy	$257.01	2.48	$636.17
		Snowy Hydro	MURRAY	Energy	-$1,000.00	-2.52	$2,520.55
		TRUenergy	YWPS2	Energy	$4,113.69	1.00	$4,113.69
14:15	$9,995.31	TRUenergy	YWPS3	Energy	$9,995.31	0.65	$6,527.55
		TRUenergy	YWPS3	Energy	$9,995.31	0.35	$3,467.76
14:20	$9,995.31	TRUenergy	YWPS2	Energy	$9,995.31	0.65	$6,527.55
		AGL Hydro	EILDON2	Energy	$9,995.31	0.35	$3,467.76
14:25	$9,995.31	TRUenergy	YWPS2	Energy	$9,995.31	0.65	$6,527.55
		TRUenergy	YWPS3	Energy	$9,995.31	0.35	$3,467.76
14:30	$9,995.31	Ecogen	JLA01	Energy	$9,505.64	0.50	$4,752.82
		Ecogen	JLA02	Energy	$9,505.64	0.50	$4,752.82
Spot price	**$8598.99/MWh**						

Tuesday 16 January – Victoria 3 pm

Time	Dispatch price	Participant	Unit	Service	Offer price	Marginal change	Contribution
14:35	$9,884.50	TRUenergy	TORRA1	Energy	$9,004.50	0.22	$1,976.90
		TRUenergy	TORRA3	Energy	$9,004.50	0.22	$1,976.90
		TRUenergy	TORRB1	Energy	$9,004.50	0.22	$1,976.90
		TRUenergy	TORRB2	Energy	$9,004.50	0.22	$1,976.90
		TRUenergy	TORRB2	Raise 6 sec	$0.50	-0.44	-$0.22
		TRUenergy	TORRB4	Raise 6 sec	$0.50	0.44	$0.22
		TRUenergy	TORRB4	Energy	$9,004.50	0.22	$1,976.90
14:40	$9,605.72	Ecogen	JLB01	Energy	$9,605.72	1.00	$9,605.72
14:45	$9,505.67	Ecogen	JLA03	Energy	$9,505.67	0.50	$4,752.84
		Ecogen	JLA04	Energy	$9,505.67	0.50	$4,752.84
14:50	$9,505.67	Ecogen	JLA03	Energy	$9,505.67	0.50	$4,752.84
		Ecogen	JLA04	Energy	$9,505.67	0.50	$4,752.84
14:55	$9,505.64	Ecogen	JLA01	Energy	$9,505.64	0.50	$4,752.82
		Ecogen	JLA02	Energy	$9,505.64	0.50	$4,752.82
15:00	$9,505.67	Ecogen	JLA03	Energy	$9,505.67	0.50	$4,752.84
		Ecogen	JLA04	Energy	$9,505.67	0.50	$4,752.84
Spot price	**$9585.48/MWh**						

Tuesday 16 January – Victoria 5 pm

Time	Dispatch price	Participant	Unit	Service	Offer price	Marginal change	Contribution
16:35	$10,000.00	NEMMCO	VoLL override	Energy	$10,000.00	1	$10,000.00
16:40	$10,000.00	NEMMCO	VoLL override	Energy	$10,000.00	1	$10,000.00
16:45	$10,000.00	NEMMCO	VoLL override	Energy	$10,000.00	1	$10,000.00
16:50	$10,000.00	NEMMCO	VoLL override	Energy	$10,000.00	1	$10,000.00
16:55	$10,000.00	NEMMCO	VoLL override	Energy	$10,000.00	1	$10,000.00
17:00	$10,000.00	NEMMCO	VoLL override	Energy	$10,000.00	1	$10,000.00
Spot price	**$10,000.00/MWh**						

Tuesday 16 January – Victoria 5.30 pm

Time	Dispatch price	Participant	Unit	Service	Offer price	Marginal change	Contribution
17:05	$10,000.00	NEMMCO	VoLL override	Energy	$10,000.00	1	$10,000.00
17:10	$10,000.00	NEMMCO	VoLL override	Energy	$10,000.00	1	$10,000.00
17:15	$10,000.00	NEMMCO	VoLL override	Energy	$10,000.00	1	$10,000.00
17:20	$10,000.00	NEMMCO	VoLL override	Energy	$10,000.00	1	$10,000.00
17:25	$10,000.00	NEMMCO	VoLL override	Energy	$10,000.00	1	$10,000.00
17:30	$10,000.00	NEMMCO	VoLL override	Energy	$10,000.00	1	$10,000.00
Spot price	**$10,000.00/MWh**						

Tuesday 16 January – Victoria 6 pm

Time	Dispatch price	Participant	Unit	Service	Offer price	Marginal change	Contribution
17:35	$10,000.00	NEMMCO	VoLL override	Energy	$10,000.00	1	$10,000.00
17:40	$10,000.00	NEMMCO	VoLL override	Energy	$10,000.00	1	$10,000.00
17:45	$10,000.00	NEMMCO	VoLL override	Energy	$10,000.00	1	$10,000.00
17:50	$10,000.00	NEMMCO	VoLL override	Energy	$10,000.00	1	$10,000.00
17:55	$10,000.00	NEMMCO	VoLL override	Energy	$10,000.00	1	$10,000.00
18:00	$10,000.00	NEMMCO	VoLL override	Energy	$10,000.00	1	$10,000.00
Spot price	**$10,000.00/MWh**						

Tuesday 16 January – Victoria 6.30 pm

Time	Dispatch price	Participant	Unit	Service	Offer price	Marginal change	Contribution
18:05	$10,000.00	NEMMCO	VoLL override	Energy	$10,000.00	1	$10,000.00
18:10	$10,000.00	NEMMCO	VoLL override	Energy	$10,000.00	1	$10,000.00
18:15	$10,000.00	NEMMCO	VoLL override	Energy	$10,000.00	1	$10,000.00
18:20	$10,000.00	NEMMCO	VoLL override	Energy	$10,000.00	1	$10,000.00
18:25	-$1,000.00	National Grid	Basslink	Energy	$0.01	1.03	$0.01
		Hydro Tas	JBUTTERS	Energy	-$999.78	1.14	-$1,137.49
18:30	$0.02	Origin	LADBROK2	Energy	$0.02	1.00	$0.02
Spot price	**$6,500.00/MWh**						

Appendix B highlights the half hour closing bids for all participants in Victoria and South Australia with capacity priced at or above $5000/MWh for the 2.30 pm or 3 pm trading intervals, for each trading interval of the day. It also shows the generation output of that participant and the spot price. Figure B1-B4 highlights the impact on dispatch of Victorian generators while Figure B5 highlights the impact on dispatch of South Australian generators

Figure B1: Alinta (Bairnsdale) closing bid prices, dispatch and region price.

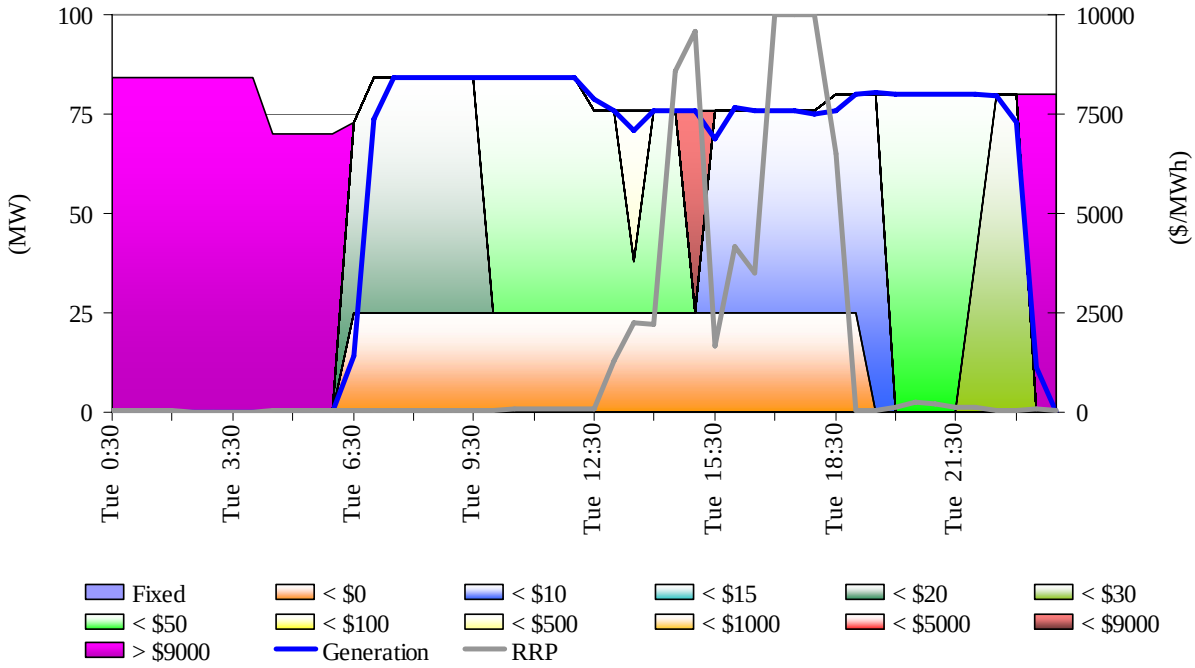


Figure B2: Ecogen (Jeeralang and Newport) closing bid prices, dispatch and spot price.

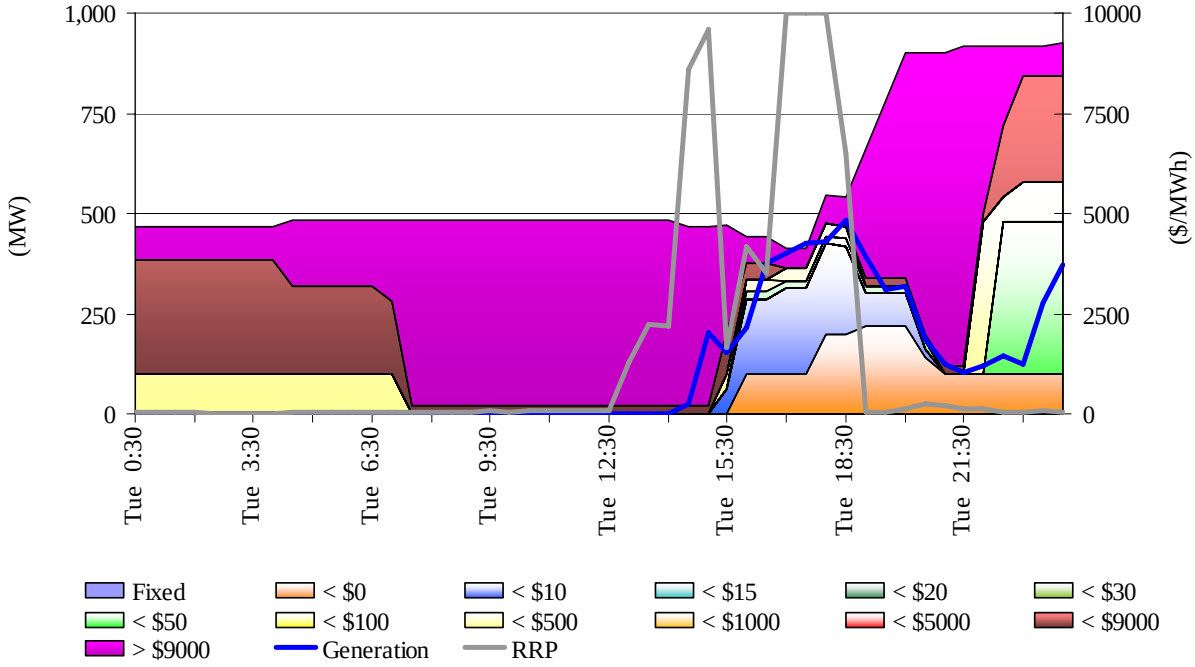


Figure B3: LYMMCO (Loy Yang A) closing bid prices, dispatch and spot price.

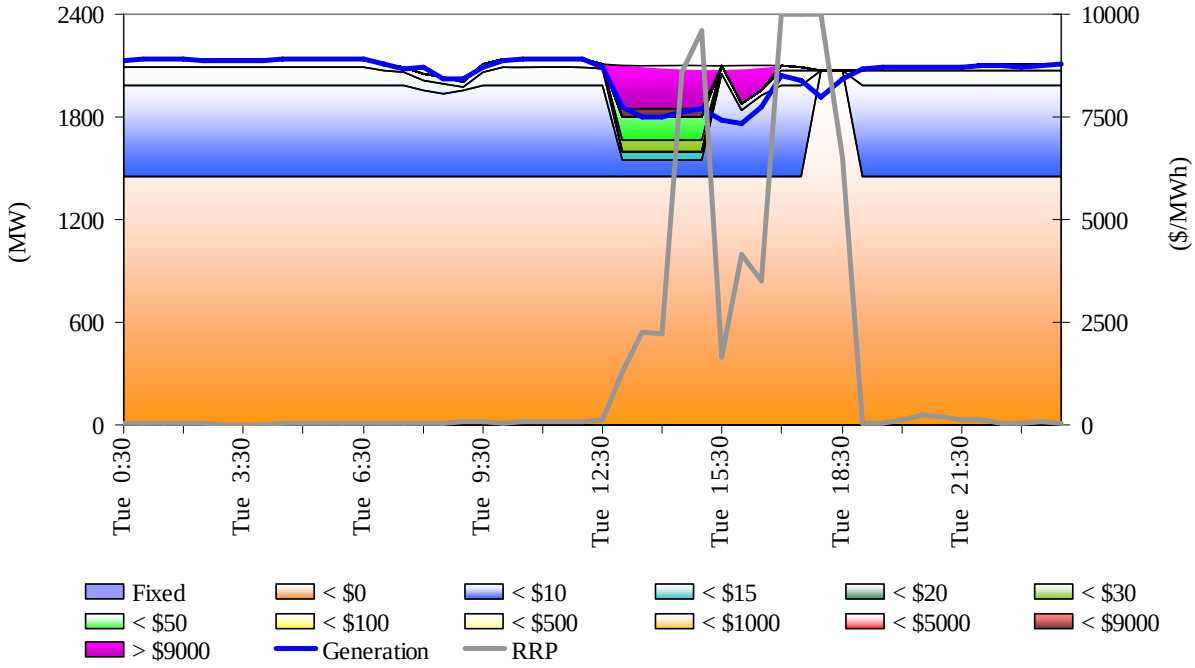


Figure B4: TRUenergy (Yallourn) closing bid prices, dispatch and spot price.

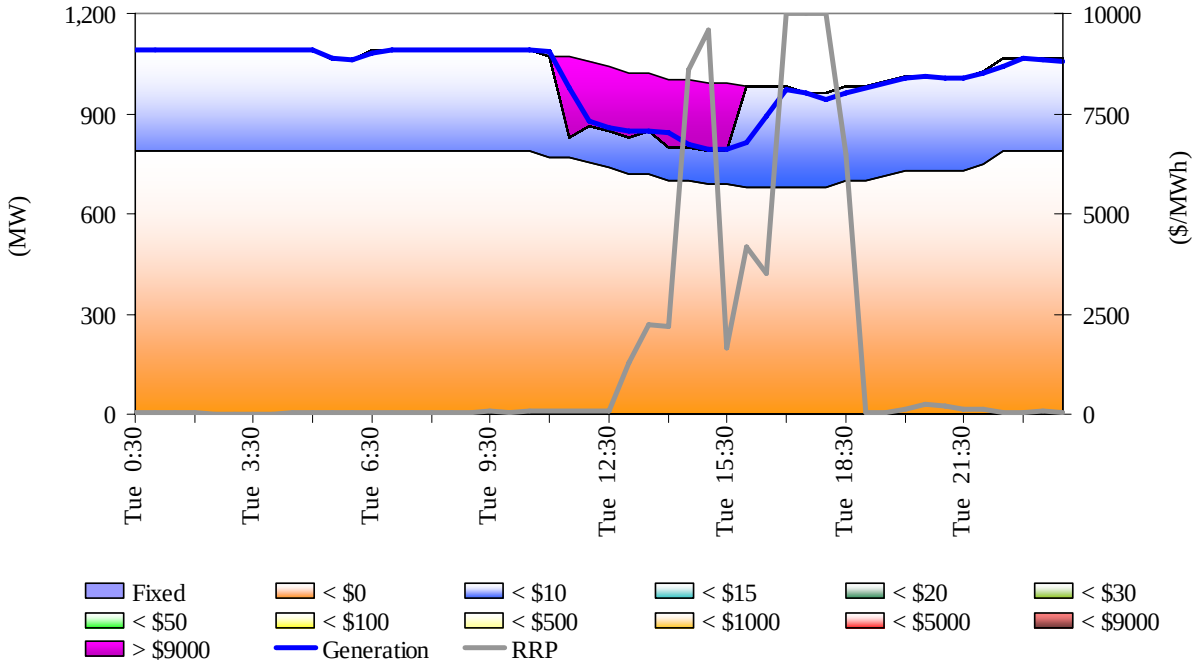


Figure B5: International Power (SA) closing bid prices, dispatch and spot price.