



# **Electricity spot prices above \$5000/MWh**

**New South Wales and  
Queensland,  
6 February 2017**

03 April 2017

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# 1 Introduction

The AER is required to publish a report whenever the electricity spot price exceeds \$5000/MWh.<sup>1</sup> The report:

- describes the significant factors contributing to the spot price exceeding \$5000/MWh, including withdrawal of generation capacity and network availability;
- assesses whether rebidding contributed to the spot price exceeding \$5000/MWh;
- identifies the marginal scheduled generating units; and
- identifies all units with offers for the trading interval equal to or greater than \$5000/MWh and compares these dispatch offers to relevant dispatch offers in previous trading intervals.

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<sup>1</sup> This requirement is set out in clause 3.13.7 (d) of the National Electricity Rules.

## 2 Summary

On 6 February 2017, wholesale electricity spot market prices for 4.30 pm and 5 pm reached \$11 028/MWh and \$6319/MWh respectively in Queensland, and \$11 962/MWh and \$6392/MWh in New South Wales. Spot prices for the rest of the day were relatively low.

Temperatures in both states were high for several days in the lead up to the high price events. On the day, the maximum temperature reached 35 degrees in the greater Sydney area and 33 degrees in Brisbane. These hot conditions led to high demand for electricity in both states, with Queensland reaching near record levels.

Forecasts prepared by the market operator (AEMO) predicted there would be sufficient supplies of electricity available to comfortably meet demand. These forecasts also predicted that spot prices would be above \$13 000/MWh for most trading intervals during the evening peak demand period. This was because cheaper imports of electricity from neighbouring states were predicted to be limited and high priced supply would need to be used to meet the high demand for electricity. Actual supplies of cheaper electricity from neighbouring states on the day were higher than predicted, and as a result spot prices exceeded \$5000/MWh on only two occasions in each state.

Rebidding of capacity by generators during the day from low to high prices (which can put upward pressure on prices), did not contribute to the spot price exceeding \$5000/MWh on this occasion.

### 3 Analysis

Spot prices in New South Wales and Queensland were aligned and exceeded \$5000/MWh for the 4.30 pm and 5 pm trading intervals. For analysis purposes, because the Queensland to New South Wales interconnector (QNI) was not constrained for all but two dispatch intervals and prices were aligned, this report considers the two regions together. Other trading intervals around the events are included in this report as they breached our weekly reporting threshold and share similar causes.

Table 1 shows the actual and forecast spot price for the high priced trading intervals in New South Wales and Queensland.

**Table 1: Actual and forecast spot price, for New South Wales and Queensland**

Trading interval	New South Wales Price (\$/MWh)			Queensland Price (\$/MWh)		
	Actual	4 hr forecast	12 hr forecast	Actual	4 hr forecast	12 hr forecast
3.30 pm	2742	14 000	13 610	2532	11 096	13 400
4 pm	4687	14 000	13 800	4260	11 647	13 641
<b>4.30 pm</b>	<b>11 692</b>	<b>14 000</b>	<b>13 490</b>	<b>11 028</b>	<b>13 400</b>	<b>13 900</b>
<b>5 pm</b>	<b>6392</b>	<b>12 981</b>	<b>12 679</b>	<b>6319</b>	<b>13 400</b>	<b>13 641</b>

Prices were forecast to exceed \$5000/MWh twelve and four hours ahead between 3.30 pm and 5pm. Actual prices were well below forecast, exceeding the threshold for the 4.30 pm and 5 pm trading intervals.

Table 2 shows the actual and forecast demand and available capacity for the high priced trading intervals in New South Wales and Queensland.

**Table 2: Actual and forecast demand and available capacity for New South Wales and Queensland combined**

Trading interval	Demand (MW)			Availability (MW)		
	Actual	4 hr forecast	12 hr forecast	Actual	4 hr forecast	12 hr forecast
3.30 pm	22 163	21 972	22 172	24 373	24 698	24 918
4 pm	22 287	22 144	22 288	24 303	24 652	24 898
<b>4.30 pm</b>	<b>22 348</b>	<b>22 146</b>	<b>22 130</b>	<b>23 991</b>	<b>24 539</b>	<b>24 903</b>
<b>5 pm</b>	<b>22 233</b>	<b>22 040</b>	<b>22 016</b>	<b>24 096</b>	<b>24 497</b>	<b>24 887</b>

Demand in Queensland was close to forecast while in New South Wales it was up to 250 MW higher than forecast four hours ahead. Generator availability was slightly lower than forecast in Queensland but up to 490 MW lower than forecast four hours ahead in New South Wales. The reasons behind this are discussed in Section 3.1.1.

## 3.1 Supply and Demand

This section discusses changes to the offered prices, capacity and market demand conditions relevant to the high price periods. For the purpose of this report demand refers to total demand as defined by AEMO.<sup>2</sup>

### 3.1.1 Unavailable capacity

Around 3200 MW of generation capacity in New South Wales and Queensland was not offered into the market compared to the planning information provided to AEMO as part of its summer ratings assessment.<sup>3</sup> The amount of generation unavailable was less than the same time last year.

Table 3 highlights the difference between the summer ratings and maximum available capacity as offered to the market for the 5 pm trading interval on 6 February. The table provides some commentary on the cause of the change as a result of rebidding during the day or as provided by the participants in their initial offers from the previous day.

**Table 3: Unavailable capacity for the 5 pm trading interval**

Region	Station	Capacity reduction compared to summer rating (MW)	Comment
Qld	Callide B	405	Unit 2 was not offered in initial offers (350 MW), minor reduction in capacity at unit 1 because of vacuum issues
Qld	Gladstone	435	Unit 3 not offered in initial offers, unit 2 was offered at 140 MW (280 MW is its summer rating) in initial offers.
NSW	Bayswater	130	Substantially declared in their initial offer
NSW	Eraring	550	Substantially declared in their initial offer
NSW	Liddell	860	Liddell unit 3 tripped at around 7.30 am reducing capacity by 480 MW, Liddell 2 reduced 100 MW due to a steam leak at around 1.15 pm, Liddell unit 4 reduced 130 MW at 4.30 pm due to a tube leak
NSW	Vales Point	160	Rebid 160 MW unavailable due to lake temperature risk management at 3.53 pm
NSW	Colongra	648	Rebid unavailable to avoid uneconomic dispatch. All of the capacity was priced at the price cap.
<b>Total</b>		<b>3188</b>	

Around half of the total capacity unavailable was not offered into the market from the first forecast price published at 12.30 pm the previous day which showed prices above \$13 400/MWh for 5 pm. Other than Colongra the remaining capacity was rebid unavailable during the day due to technical issues.

<sup>2</sup> [https://www.aemo.com.au/-/media/Files/Electricity/NEM/Security\\_and\\_Reliability/Dispatch/Policy\\_and\\_Process/2016/Demand-terms-in-EMMS-Data-Model\\_Final.pdf](https://www.aemo.com.au/-/media/Files/Electricity/NEM/Security_and_Reliability/Dispatch/Policy_and_Process/2016/Demand-terms-in-EMMS-Data-Model_Final.pdf)

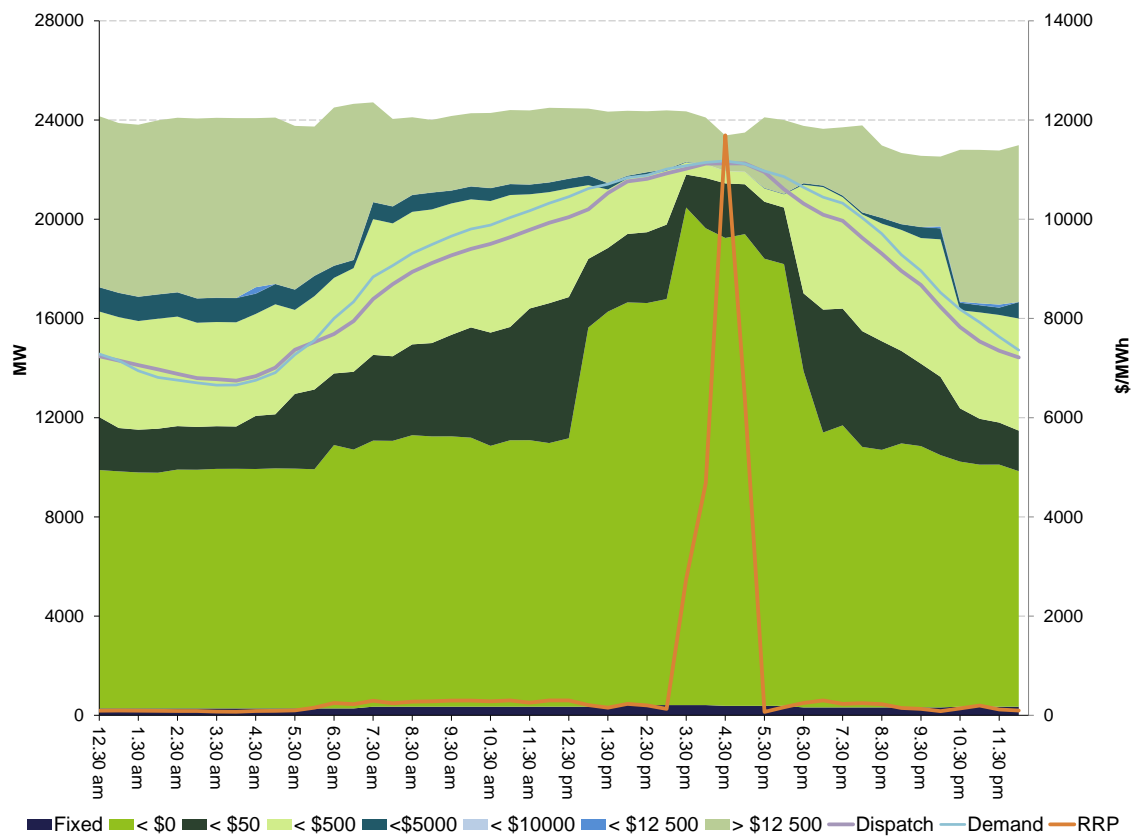
<sup>3</sup> AEMO generation information page <http://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Planning-and-forecasting/Generation-information>

Snowy Hydro rebid Colongra power station unavailable at 4.22 pm, during the 4.30 pm trading interval, to “avoid uneconomic dispatch”. This rebid had no real effect on prices as the offers for this station were already at the price cap and would not have affected the forecast price.

### 3.1.2 Offers

Figure 1 shows the capacity by price bands at the time of dispatch (known as closing bids) for the New South Wales and Queensland participants and the combined regional dispatch and demand. The figure also shows the New South Wales spot price (the Queensland spot price is not shown as it was aligned with New South Wales).

**Figure 1: Closing bids for New South Wales and Queensland**



The total demand in the two regions was around 22 200 MW and the total availability was around 24 000 MW meaning there was sufficient capacity to meet demand in the two regions.

During the 4.30 pm and 5 pm trading intervals demand was around 22 300 MW. Around 22 000 MW of capacity was priced below \$500/MWh with the remainder priced above \$12 500/MWh. Under these circumstances, with limited import capability from Victoria, the price exceeded \$5000/MWh. Spot prices for 4.30 pm and 5 pm had been consistently forecast to be above \$5000/MWh throughout the day.

The dip in the top green section (representing capacity offered at prices greater than \$12 500/MWh) at around 4.30 pm was caused by Snowy Hydro rebidding Colongra



Power Station unavailable (656 MW of capacity<sup>4</sup>) to “avoid uneconomic dispatch”, as discussed in section 3.1.1.

The rebids relating to the capacity reductions at AGL’s Liddell power station, as shown in Table 3, had little effect on forecast prices as a majority of the capacity was withdrawn more than twelve hours prior to the high price periods and prices were already forecast to be \$14 000/MWh.

The rebids considered to have been material to the event are listed in Appendix A.

Appendix B details the generators involved in setting the price during the high-price periods, and how that price was determined by the market systems.

The closing bids for all participants in New South Wales with capacity priced at or above \$5000/MWh for the high-price periods are set out in Appendix C.

### 3.1.3 Demand

On the 6 February the temperature in Sydney reached a maximum of 35 degrees and 33 degrees in Brisbane.<sup>5</sup>

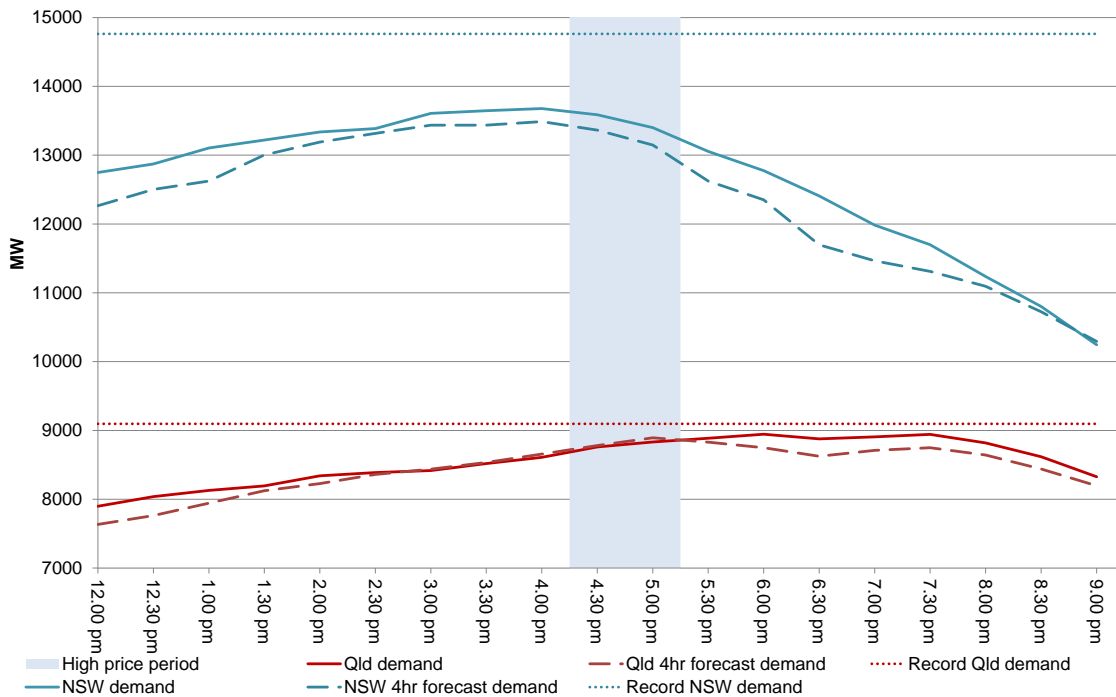
Figure 2 shows the half hourly demand and its respective four hours ahead forecast during the high priced period as well as New South Wales and Queensland record total demand. Demand was close to forecast and almost reached record levels in Queensland while demand in New South Wales was slightly below that forecast four hours ahead.

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<sup>4</sup> Initial offers of 656 MW for Colongra were above their summer rating of 648 MW

<sup>5</sup> [http://www.bom.gov.au/jsp/ncc/cdio/weatherData/av?p\\_nccObsCode=122&p\\_display\\_type=dailyDataFile&p\\_startYear=&p\\_c=&p\\_stn\\_num=066062](http://www.bom.gov.au/jsp/ncc/cdio/weatherData/av?p_nccObsCode=122&p_display_type=dailyDataFile&p_startYear=&p_c=&p_stn_num=066062),  
[http://www.bom.gov.au/jsp/ncc/cdio/weatherData/av?p\\_nccObsCode=122&p\\_display\\_type=dailyDataFile&p\\_startYear=&p\\_c=&p\\_stn\\_num=040211](http://www.bom.gov.au/jsp/ncc/cdio/weatherData/av?p_nccObsCode=122&p_display_type=dailyDataFile&p_startYear=&p_c=&p_stn_num=040211)

**Figure 2 New South Wales and Queensland demand**



### 3.2 Network Availability

This section examines the change in network capability and its contribution to price outcomes.

As we are treating Queensland and New South Wales as a single region for the purpose of this report, the Victoria to New South Wales interconnector (Vic-NSW) is the critical link to the rest of the NEM.

The import limit into New South Wales across Vic-NSW was greater than forecast four hours ahead. Table 4 shows the actual and forecast imports and import limit into New South Wales on the Vic-NSW interconnector.

**Table 4: Net actual and forecast network capability of VIC-NSW interconnectors**

Trading interval	Imports (MW)			Import limit (MW)		
	Actual	4 hr forecast	12 hr forecast	Actual	4 hr forecast	12 hr forecast
3.30 pm	189	-33	344	231	-33	344
4 pm	297	-18	379	297	-18	379
<b>4.30 pm</b>	<b>341</b>	<b>13</b>	<b>379</b>	<b>341</b>	<b>13</b>	<b>379</b>
<b>5 pm</b>	<b>273</b>	<b>25</b>	<b>379</b>	<b>289</b>	<b>25</b>	<b>379</b>

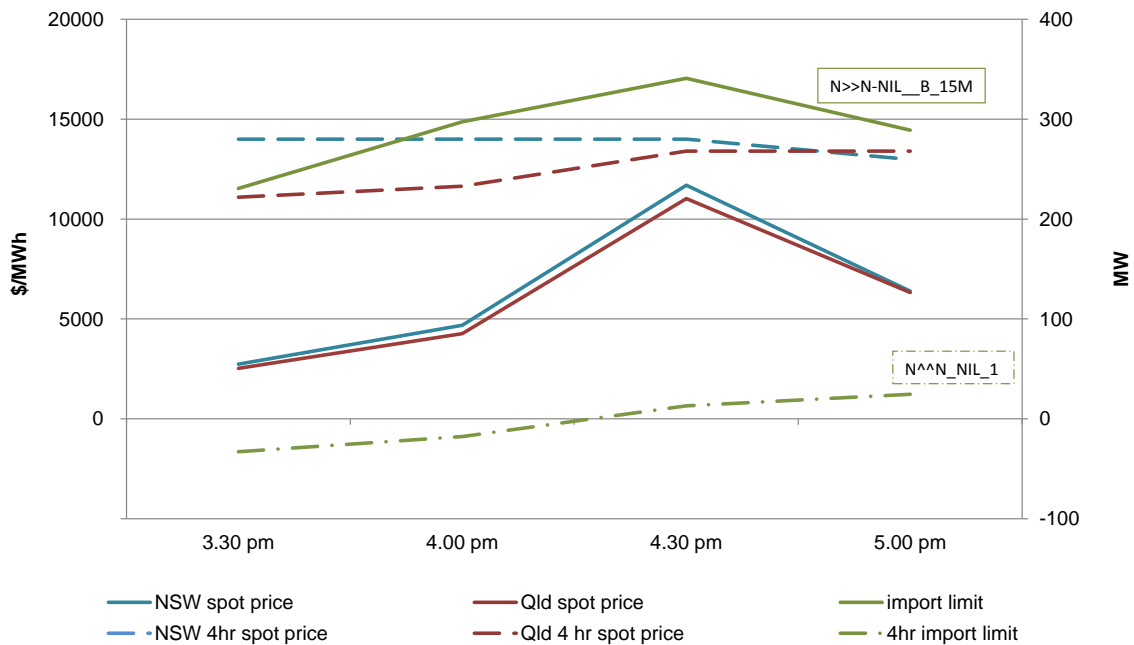
Imports into New South Wales from Victoria were around 330 MW and 250 MW higher than forecast four hours ahead for the 4.30 pm and 5 pm trading intervals.

For a majority of the high price times a system normal network constraint was forecast to be limiting imports into New South Wales.<sup>6</sup> 12 hours ahead, limits and flows into New South Wales on Vic-NSW as a result of this constraint were forecast to be around 380 MW. Four hours ahead this constraint was forecast to be limiting flows into New South Wales to no more than 25 MW and, at times, forcing flow out of New South Wales into Victoria by up to 33 MW.

A different system normal constraint actually bound for most of the period during which prices were greater than \$5000/MWh and limited imports into New South Wales from Victoria to between 341 MW and 289 MW for the 4.30 pm and 5 pm trading intervals.<sup>7</sup> Thus actual imports were higher than was forecast four hours ahead and as a result the spot price was lower than what was forecast four hours ahead.

Figure 3 shows the four hours ahead forecast import limit on Vic-NSW, the spot price in Queensland and New South Wales, the actual import limit and spot prices.

**Figure 3 Vic-NSW interconnector actual and forecast import limits and actual and forecast price in Queensland and New South Wales**



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<sup>6</sup> N^N^N\_NIL\_1 limits northerly flow across the Snowy Mountain region to maintain voltage stability.

<sup>7</sup> N>>N-NIL\_B\_15M is designed to avoid overloading Upper Tumut to Canberra line on the loss of the Lower Tumut to Canberra line and uses 15 minute line ratings for greater accuracy of the lines limits.

## Appendix A: Significant Rebids

The rebidding tables highlight the relevant rebids submitted by generators that impacted on market outcomes during the time of high prices. It details the time the rebid was submitted and used by the dispatch process, the capacity involved, the change in the price of the capacity was being offered and the rebid reason.

**Table 5: Significant energy rebids for 4.30 pm**

Submit time	Time effective	Participant	Station	Capacity rebid (MW)	Price from (\$/MWh)	Price to (\$/MWh)	Rebid reason
7.26 am		AGL Energy	Liddell	-480	<14 000	N/A	0725~P~020 reduction in avail cap~204 unit trip
12.25 pm		AGL Energy	Liddell	-30	0	N/A	1225~P~020 reduction in avail cap~206 unexp ambient temp effects 30MW
1.16 pm		AGL Energy	Liddell	-170	0	N/A	1313~P~020 reduction in avail cap~203 plant failure 170MW - steam leak
3.53 pm		Delta Electricity	VP5	-80	13 800	N/A	1552P lake temperature risk management
3.53 pm		Delta Electricity	VP6	-80	13 800	N/A	1553P lake temperature risk management
4.22 pm	4.30 pm	Snowy	Colongra	-656	14 000	N/A	16:21:26 A avoid uneconomic start: min load will dispatch more MW's than required by the market at \$14,000

**Table 6: Significant energy rebids for 5pm**

Submit time	Time effective	Participant	Station	Capacity rebid (MW)	Price from (\$/MWh)	Price to (\$/MWh)	Rebid reason
7.26 am		AGL Energy	Liddell	-480	<14 000	N/A	0725~P~020 reduction in avail cap~204 unit trip
12.25 pm		AGL Energy	Liddell	-30	0	N/A	1225~P~020 reduction in avail cap~206 unexp ambient temp effects 30MW
1.16 pm		AGL Energy	Liddell	-170	0	N/A	1313~P~020 reduction in avail cap~203 plant failure 170MW - steam leak
3.53 pm		Delta Electricity	VP5	-80	13 800	N/A	1552P lake temperature risk management
3.53 pm		Delta Electricity	VP6	-80	13 800	N/A	1553P lake temperature risk management
4.26 pm	4.35 pm	AGL Energy	Liddell	100	N/A	-1000	1625~P~030 increase in avail cap~301 plant limit lifted 100MW
4.29 pm	4.40 pm	AGL Energy	Liddell	-130	<14 000	N/A	1625~P~020 reduction in avail cap~203 plant failure 130mw - tube leak / ramp rate vari during de-loading

Submit time	Time effective	Participant	Station	Capacity rebid (MW)	Price from (\$/MWh)	Price to (\$/MWh)	Rebid reason
1.11 pm		CS Energy	Kogan Creek	-25	14	N/A	1311P technical issues-boiler o2 stability limit-SL
4.52 pm	5 pm	Snowy	Colongra	-656	14 000	N/A	16:52:00 A avoid uneconomic start - min load target higher than required for the market

## Appendix B: Price setter

The following table identifies for the trading intervals in which the spot price exceeded \$5000/MWh, each five minute dispatch interval price and the generating units involved in setting the energy price. This information is published by AEMO.<sup>8</sup> The 30-minute spot price is the average of the six dispatch interval prices. Prices in italics are capped at the Market Price Cap of \$14 000/MWh.

**Table 7: Queensland price setter for the 4.30 pm trading interval**

DI	Dispatch Price (\$/MWh)	Participant	Unit	Service	Offer price (\$/MWh)	Marginal change	Contribution
16:05	\$324.41	AGL Energy	BW04	Energy	\$59.96	0.92	\$55.16
		Delta Electricity	VP5	Raise reg	\$300.00	0.92	\$276.00
		AGL Energy	BW04	Raise reg	\$7.40	-0.92	-\$6.81
16:10	\$13 239.74	AGL Energy	LD04	Energy	\$13 999.97	0.94	\$13 159.97
		AGL (SA)	TORRB4	Raise reg	\$75.00	0.94	\$70.50
		AGL Energy	LD04	Raise reg	\$0.01	-0.94	-\$0.01
16:15	\$12 623.05	Delta Electricity	VP5	Energy	\$13 800.00	0.42	\$5796.00
		Delta Electricity	VP6	Energy	\$13 800.00	0.42	\$5796.00
		Hydro Tasmania	POAT220	Energy	\$69.65	1.15	\$80.10
		Basslink	Basslink	Energy	\$0.00	-1.15	\$0.00
		Snowy Hydro	UPPTUMUT	Energy	-\$1000.00	-0.99	\$990.00
16:20	\$13 168.55	Delta Electricity	VP5	Energy	\$13 800.00	0.48	\$6624.00
		Delta Electricity	VP6	Energy	\$13 800.00	0.48	\$6624.00
16:25	\$13 411.75	Stanwell	STAN-4	Energy	\$13 399.95	1.00	\$13 399.95
		Delta Electricity	VP6	Raise 60 sec	\$5.00	1.00	\$5.00
		Stanwell	STAN-4	Raise 60 sec	\$0.00	-1.00	\$0.00
		AGL Energy	LD02	Raise 6 sec	\$6.80	1.00	\$6.80
		Stanwell	STAN-4	Raise 6 sec	\$0.00	-1.00	\$0.00
16:30	\$13 399.95	Stanwell	STAN-2	Energy	\$13 399.95	0.12	\$1607.99
		Stanwell	STAN-3	Energy	\$13 399.95	0.59	\$7905.97
		Stanwell	TARONG#1	Energy	\$13 399.95	0.06	\$804.00
		Stanwell	TARONG#3	Energy	\$13 399.95	0.12	\$1607.99
		Stanwell	TARONG#4	Energy	\$13 399.95	0.12	\$1607.99
<b>Spot Price</b>		<b>\$11 028/MWh</b>					

<sup>8</sup> Details on how the price is determined can be found at [www.aemo.com.au](http://www.aemo.com.au)

**Table 8: Queensland price setter for the 5 pm trading interval**

DI	Dispatch Price (\$/MWh)	Participant	Unit	Service	Offer price (\$/MWh)	Marginal change	Contribution
16:35	\$13 360.12	Delta Electricity	VP5	Energy	\$13 800.00	0.48	\$6624.00
		Delta Electricity	VP6	Energy	\$13 800.00	0.48	\$6624.00
16:40	\$74.74	Braemar Power Projects	BRAEMAR1	Energy	\$74.74	0.36	\$26.91
		Braemar Power Projects	BRAEMAR2	Energy	\$74.74	0.32	\$23.92
		Braemar Power Projects	BRAEMAR3	Energy	\$74.74	0.32	\$23.92
16:45	\$68.24	Engie	PPCCGT	Energy	\$78.69	0.87	\$68.46
16:50	\$70.30	Engie	PPCCGT	Energy	\$78.69	0.89	\$70.03
16:55	\$13 899.95	Stanwell	TARONG#1	Energy	\$13 899.95	0.13	\$1806.99
		Stanwell	TARONG#3	Energy	\$13 899.95	0.43	\$5976.98
		Stanwell	TARONG#4	Energy	\$13 899.95	0.43	\$5976.98
17:00	\$10 439.13	Hydro Tasmania	POAT220	Energy	\$69.65	11.19	\$779.38
		Basslink	Basslink	Energy	\$0.00	-11.19	\$0.00
		Snowy Hydro	UPPTUMUT	Energy	-\$1000.00	-9.66	\$9660.00
<b>Spot Price</b>		<b>\$6319/MWh</b>					

**Table 9: New South Wales price setter for the 4.30 pm trading interval**

DI	Dispatch Price (\$/MWh)	Participant	Unit	Service	Offer price (\$/MWh)	Marginal change	Contribution
16:05	\$352.56	AGL Energy	BW04	Energy	\$59.96	1.00	\$59.96
		Delta Electricity	VP5	Raise reg	\$300.00	1.00	\$300.00
		AGL Energy	BW04	Raise reg	\$7.40	-1.00	-\$7.40
16:10	\$14 074.96	AGL Energy	LD04	Energy	\$13 999.97	1.00	\$13 999.97
		AGL (SA)	TORRB4	Raise reg	\$75.00	1.00	\$75.00
		AGL Energy	LD04	Raise reg	\$0.01	-1.00	-\$0.01
16:15	\$14 253.94	Delta Electricity	VP5	Energy	\$13 800.00	0.56	\$7728.00
		Delta Electricity	VP6	Energy	\$13 800.00	0.56	\$7728.00
		Hydro Tasmania	POAT220	Energy	\$69.65	-1.17	-\$81.49
		Basslink	Basslink	Energy	\$0.00	1.17	\$0.00
		Snowy Hydro	UPPTUMUT	Energy	-\$1000.00	1.00	-\$1000.00
16:20	\$13 800.00	Delta Electricity	VP5	Energy	\$13 800.00	0.50	\$6900.00
		Delta Electricity	VP6	Energy	\$13 800.00	0.50	\$6900.00
16:25	\$14 046.06	Stanwell	STAN-4	Energy	\$13 399.95	1.05	\$14 069.95
		Delta Electricity	VP6	Raise 60 sec	\$5.00	1.05	\$5.25
		Stanwell	STAN-4	Raise 60 sec	\$0.00	-1.05	\$0.00
		AGL Energy	LD02	Raise 6 sec	\$6.80	1.05	\$7.14
		Stanwell	STAN-4	Raise 6 sec	\$0.00	-1.05	\$0.00
16:30	\$14 030.51	Stanwell	STAN-2	Energy	\$13 399.95	0.12	\$1607.99
		Stanwell	STAN-3	Energy	\$13 399.95	0.62	\$8307.97
		Stanwell	TARONG#1	Energy	\$13 399.95	0.06	\$804.00

DI	Dispatch Price (\$/MWh)	Participant	Unit	Service	Offer price (\$/MWh)	Marginal change	Contribution
		Stanwell	TARONG#3	Energy	\$13 399.95	0.12	\$1607.99
		Stanwell	TARONG#4	Energy	\$13 399.95	0.12	\$1607.99
<b>Spot Price</b>		<b>\$11 692/MWh</b>					

**Table 10: New South Wales price setter for the 5 pm trading interval**

DI	Dispatch Price (\$/MWh)	Participant	Unit	Service	Offer price (\$/MWh)	Marginal change	Contribution
16:35	\$13 800.00	Delta Electricity	VP5	Energy	\$13 800.00	0.50	\$6900.00
		Delta Electricity	VP6	Energy	\$13 800.00	0.50	\$6900.00
16:40	\$76.97	Braemar Power Projects	BRAEMAR1	Energy	\$74.74	0.51	\$38.12
		Braemar Power Projects	BRAEMAR2	Energy	\$74.74	0.46	\$34.38
		Braemar Power Projects	BRAEMAR3	Energy	\$74.74	0.46	\$34.38
		Hydro Tasmania	POAT220	Energy	\$69.65	-0.42	-\$29.25
			Basslink	Energy	\$0.00	0.42	\$0.00
16:45	\$68.97	Engie	PPCCGT	Energy	\$78.69	0.88	\$69.25
16:50	\$70.56	Engie	PPCCGT	Energy	\$78.69	0.90	\$70.82
16:55	\$14 972.30	Stanwell	TARONG#1	Energy	\$13 899.95	0.16	\$2223.99
		Stanwell	TARONG#3	Energy	\$13 899.95	0.54	\$7505.97
		Stanwell	TARONG#4	Energy	\$13 899.95	0.54	\$7505.97
		Hydro Tasmania	POAT220	Energy	\$69.65	-2.58	-\$179.70
17:00	\$10 337.38	Hydro Tasmania	POAT220	Energy	\$69.65	11.08	\$771.72
		Basslink	Basslink	Energy	\$0.00	-11.08	\$0.00
		Snowy Hydro	UPPTUMUT	Energy	-\$1000.00	-9.57	\$9570.00
<b>Spot Price</b>		<b>\$6392/MWh</b>					

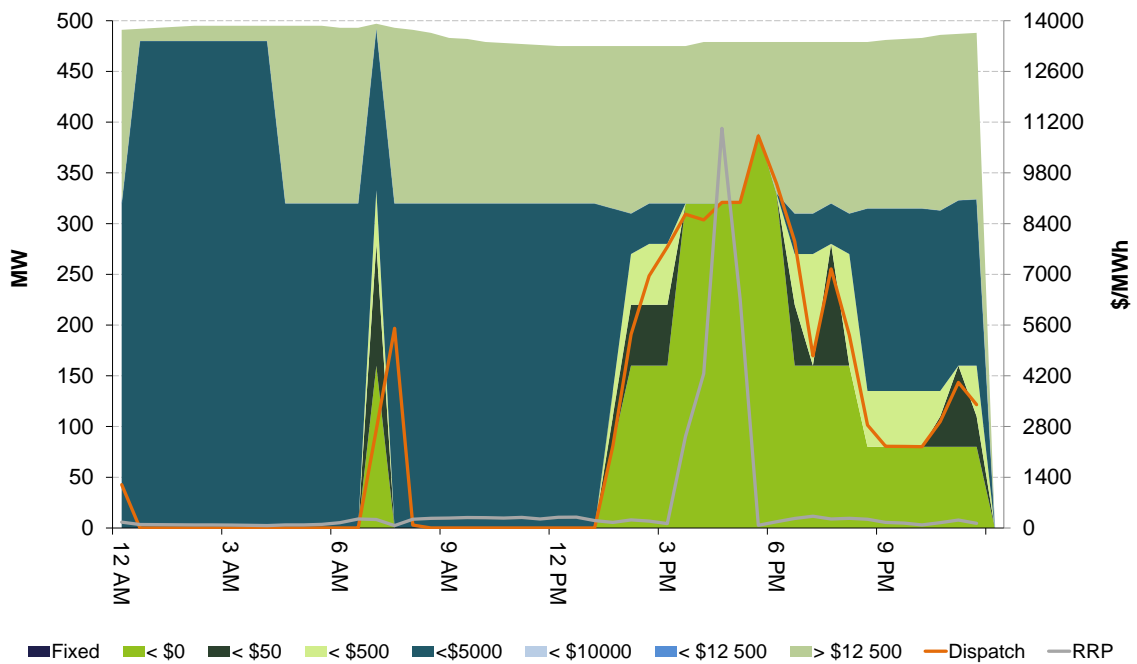


## Appendix C: Closing bids

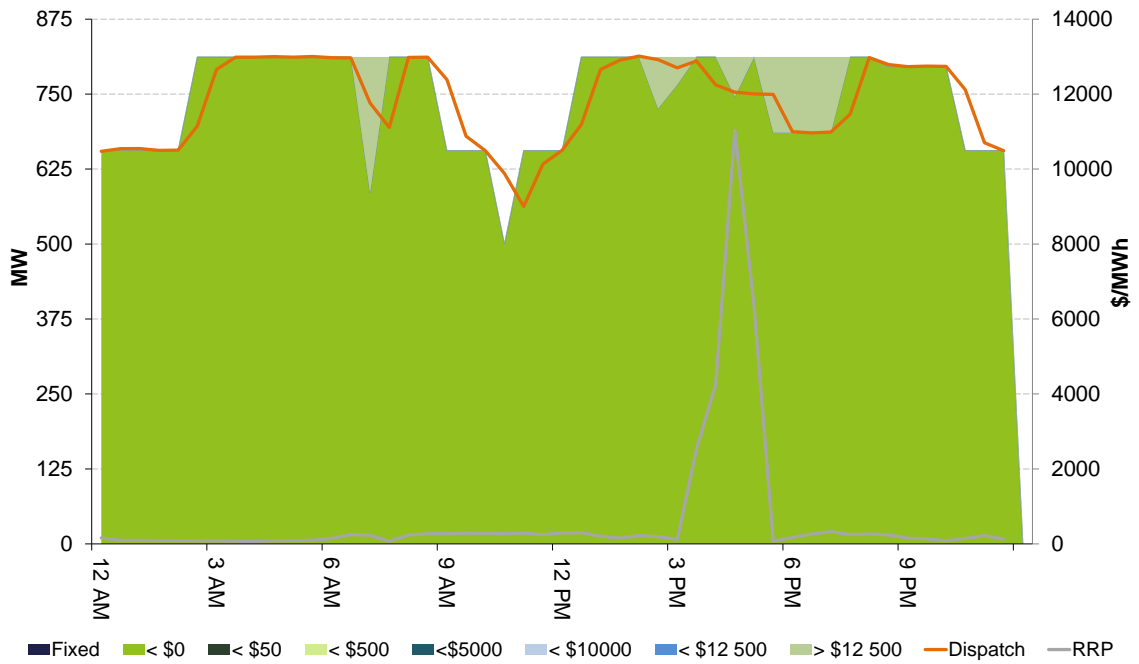
Figures C1 to C8 highlight the half hour closing bids for participants in Queensland and New South Wales with significant capacity priced at or above \$5000/MWh during the periods in which the spot price exceeded \$5000/MWh. They also show generation output and the spot price.

### Queensland

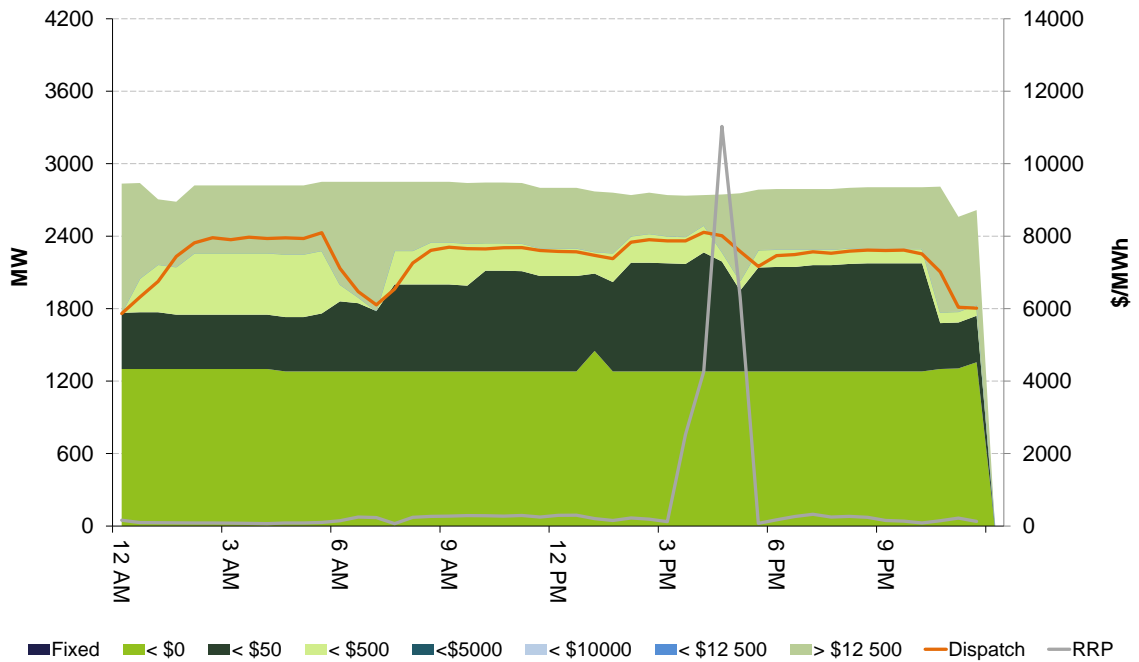
**Figure C1 – Arrow Energy (Braemar 2) closing bid prices, dispatch and spot price**



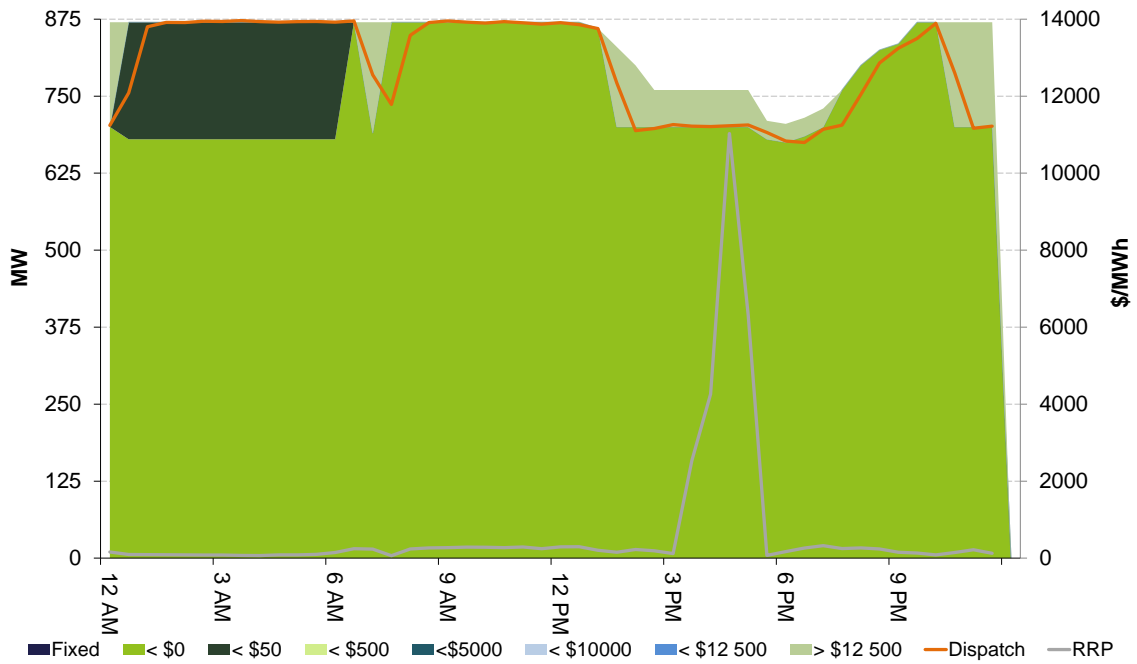
**Figure C2 – Callide Power Trading (Callide C) closing bid prices, dispatch and spot price**



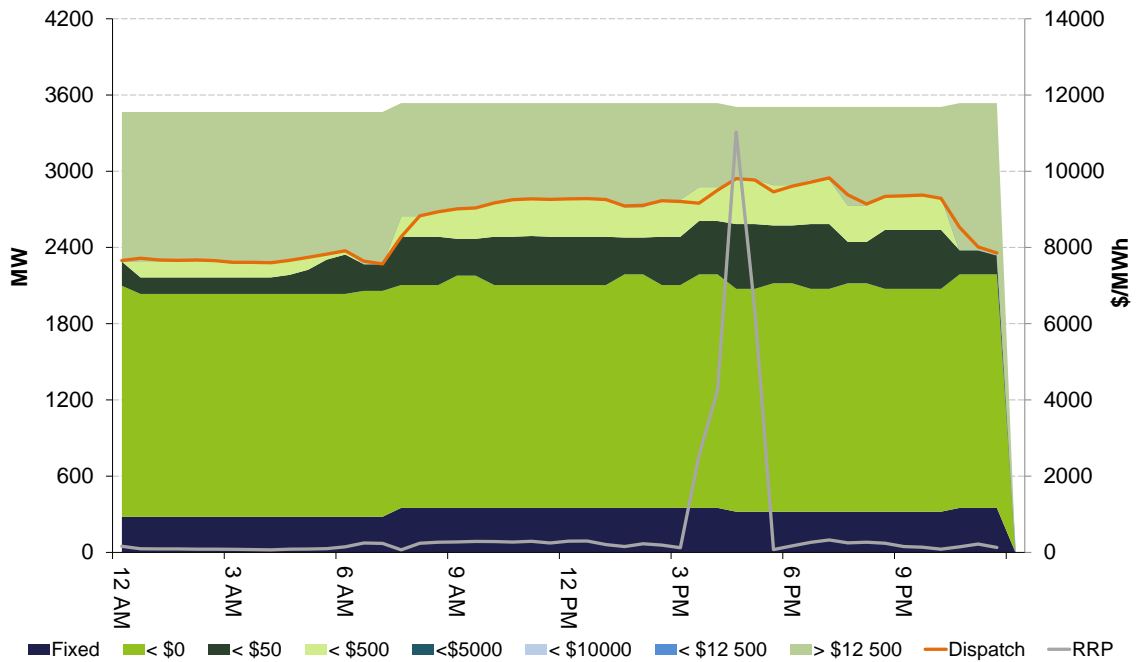
**Figure C3 – CS Energy (Callide B, Gladstone, Kogan Creek, Wivenhoe) closing bid prices, dispatch and spot price**



**Figure C4 – Millmerran Energy Trader (Millmeran) closing bid prices, dispatch and spot price**



**Figure C5 – Stanwell (Barron Gorge, Kareeya, Mackay GT, Stanwell, Tarong, Tarong North) closing bid prices, dispatch and spot price**



## New South Wales

Figure C6 - AGL (Bayswater, Liddell, Hunter Valley) closing bid prices, dispatch and spot price

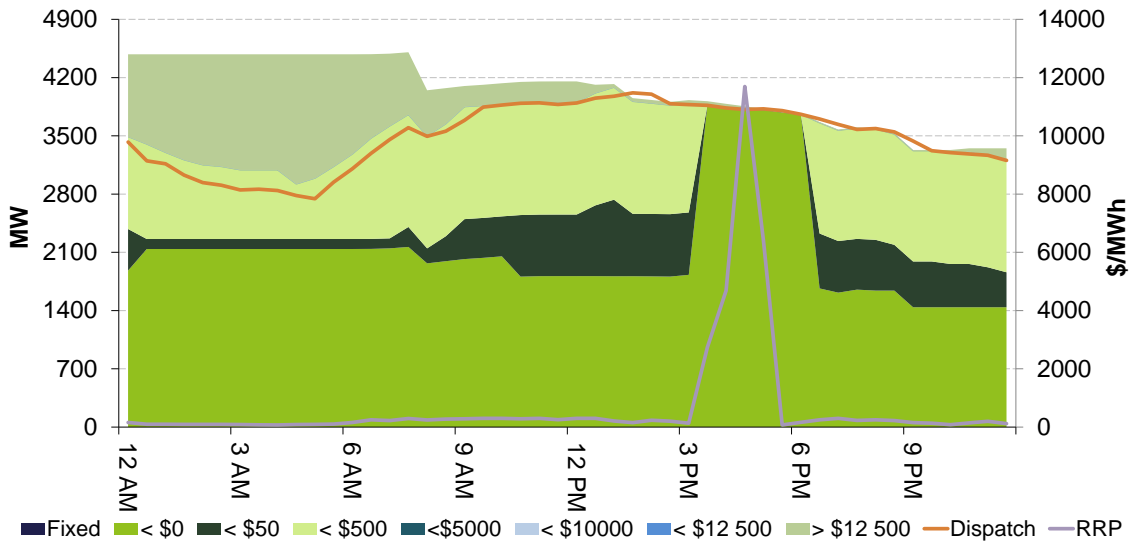
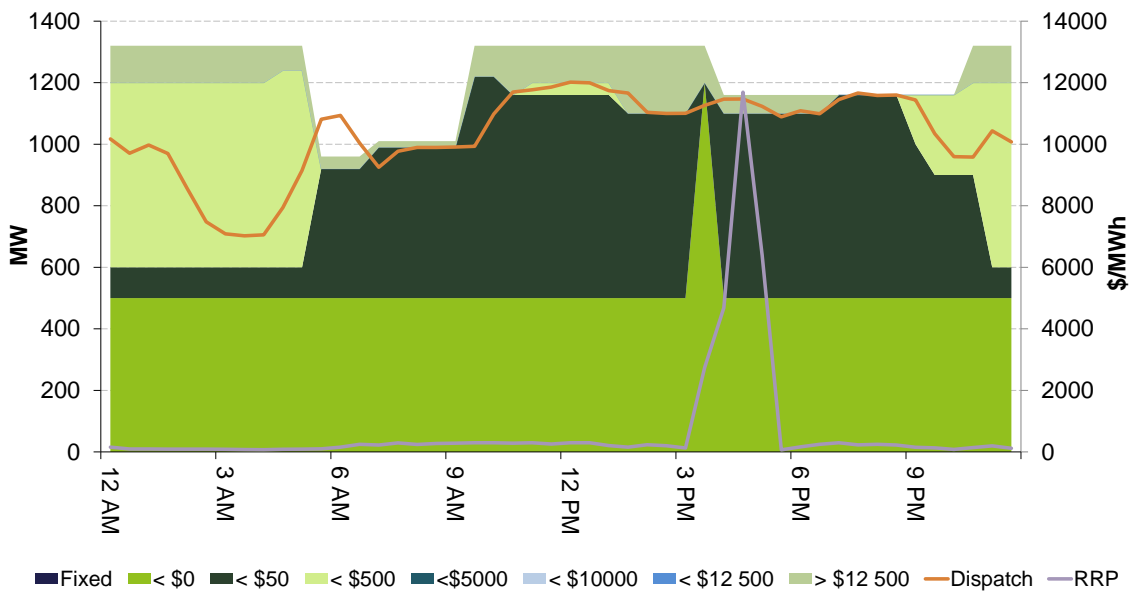


Figure C7 - Delta (Vales Point) closing bid prices, dispatch and spot price



**Figure C8 – Snowy Hydro (Colongra, Tumut, Upper Tumut, Guthega, Blowering) closing bid prices, dispatch and spot price**

