Electricity spot prices above $5,000/MWh

South Australia, 12 March 2021

12 May 2021

AUSTRALIAN ENERGY REGULATOR

Inquiries about this publication should be addressed to:

Australian Energy Regulator
GPO Box 520
MELBOURNE VIC 3001

Tel: (03) 9290 1444
Fax: (03) 9290 1457

Email: AERInquiry@aer.gov.au
AER Reference: AER212583

Amendment Record

Version	Date	Pages
Final report	12/05/2021	21

Contents

1 Obligation

The Australian Energy Regulator (AER) regulates energy markets and networks under national legislation and rules in eastern and southern Australia, as well as networks in the Northern Territory. Its functions include:

- monitoring wholesale electricity and gas markets to ensure energy businesses comply with the legislation and rules, and taking enforcement action where necessary;
- setting the amount of revenue that network businesses can recover from customers for using networks (electricity poles and wires and gas pipelines) that transport energy;
- regulating retail energy markets in Queensland, New South Wales, South Australia, Tasmania (electricity only), and the ACT;
- operating the Energy Made Easy website, which provides a retail price comparator and other information for energy consumers;
- publishing information on the performance of energy markets, including the annual State of the energy market report and biennial effective competition report, to assist stakeholders and the wider community.

The AER is required to publish a report whenever the electricity spot price exceeds $5,000 per megawatt hour ($/MWh) in accordance with clause 3.13.7 (d) of the National Electricity Rules.

The report:

- describes the significant factors contributing to the spot price exceeding $5,000/MWh, including withdrawal of generation capacity and network availability;
- assesses whether rebidding contributed to the spot price exceeding $5,000/MWh;
- identifies the marginal scheduled generating units; and
- identifies all units with offers for the trading interval equal to or greater than $5,000/MWh and compares these dispatch offers to relevant dispatch offers in previous trading intervals.

These reports are designed to examine market events and circumstances that contributed to wholesale market price outcomes and are not an indicator of potential compliance issues or enforcement action.

2 Summary

On 12 March 2021 the spot price in South Australia exceeded $5,000/MWh 6 times between 6 pm and midnight. Prices were forecast to be above $1,000/MWh for most of the high priced intervals.

The main drivers were related to a reduction in or access to low priced capacity.

- At around 5.10 pm a fire in the Torrens Island power station (TIPS) switchyard saw the Barker Inlet power station disconnected reducing capacity by around 200 MW, all of which was priced below $61/MWh.
- The fire also limited output from TIPS B to close to minimum generation levels by AEMO to keep the system secure. This effectively removed 540 MW of capacity priced below $250/MWh. TIPS B did have this limit lifted throughout the day but total output was capped at 270 MW out of a possible 600 MW.
- At times there was as little as 2 MW of high priced capacity needed to meet demand so minor rebidding of capacity from low to high prices contributed to the price exceeding $5,000/MWh.
- There was little wind generation, dropping to as low as 12 MW. Wind is generally offered in at negative prices.
- There was a planned outage of lines in Victoria for major repairs from severe wind damage in 2020 which limited South Australia's ability to import cheaper generation from Victoria.

The reduction in capacity did lead to a reserve shortfall of 131 MW for an hour from 7.30 pm.

3 Analysis

On 12 March 2021 the spot price in South Australia exceeded $5,000/MWh 6 times between 6 pm and midnight. A fire at the Torrens Island switchyard led to equipment failing onsite and Barker Inlet power station tripping.

3.1 Overview of actual and expected conditions

The spot price in South Australia ranged between $509/MWh and $14,348/MWh from the 6 pm trading interval to midnight.

Table 1 shows that spot prices over $1,000/MWh for much of the evening peak were forecast before the fire in the switchyard happened. Demand was close to forecast until around 7.30 pm. From 8 pm onwards, demand was between 100 MW and 150 MW lower than forecast. Availability was up to 795 MW lower than forecast due to the fire and the loss of generation at TIPS and Barker Inlet.

Table 1: Actual and forecast spot price, demand and available capacity

Trading interval	Price ($/MWh)			Demand (MW)			Availability (MW)		
	Actual	4 hr forecast	12 hr forecast	Actual	4 hr forecast	12 hr forecast	Actual	4 hr forecast	12 hr forecast
6 pm	1,087	100	279	1,607	1,626	1,643	2,243	2,379	2,264
6.30 pm	3,372	380	380	1,689	1,693	1,713	2,199	2,282	2,267
7 pm	2,042	1,500	1,153	1,770	1,731	1,735	2,057	2,188	2,181
7.30 pm	**5,010**	**1,017**	**1,015**	**1,752**	**1,727**	**1,730**	**1,977**	**2,192**	**2,161**
8 pm	**14,348**	**1,500**	**1,015**	**1,680**	**1,775**	**1,693**	**1,404**	**2,199**	**2,171**
8.30 pm	**5,066**	**1,750**	**397**	**1,613**	**1,712**	**1,643**	**1,466**	**2,228**	**2,200**
9 pm	2,208	1,500	380	1,545	1,646	1,581	1,570	2,230	2,214
9.30 pm	2,206	158	279	1,472	1,583	1,532	1,665	2,264	2,214
10 pm	509	118	279	1,393	1,515	1,483	1,698	2,344	2,135
10.30 pm	1,939	62	67	1,339	1,467	1,452	1,851	2,341	2,184
11 pm	**12,223**	**62**	**350**	**1,302**	**1,423**	**1,415**	**1,930**	**2,345**	**2,211**
11.30 pm	**5,309**	**62**	**380**	**1,261**	**1,408**	**1,405**	**1,929**	**2,399**	**2,229**
midnight	**7,885**	**15,000**	**579**	**1,374**	**1,517**	**1,510**	**2,021**	**1,976**	**2,313**

3.2 Background

This section details conditions before the incident occurred.

- A planned outage of the Moorabool to Mortlake 500 kV line in Victoria was underway. This outage was to repair the line from severe wind damage in 2020. The outage limited imports into South Australia by around 350 MW across the Heywood interconnector.

- By 6 pm wind generation was forecast to fall to 161 MW, 4 hours prior, and solar output would be down to 0 MW by 7.30 pm.
- Prices were forecast to be above $1,000/MWh for most of the high priced intervals because of limited imports, low wind generation and falling solar generation as the sun sets.
- Before any incident occurred, price forecasts were showing that even a 100 MW increase in demand or loss of supply would lead to the 7.30 pm trading interval price increasing from $1,017/MWh to $13,100/MWh.

3.3 Network incident

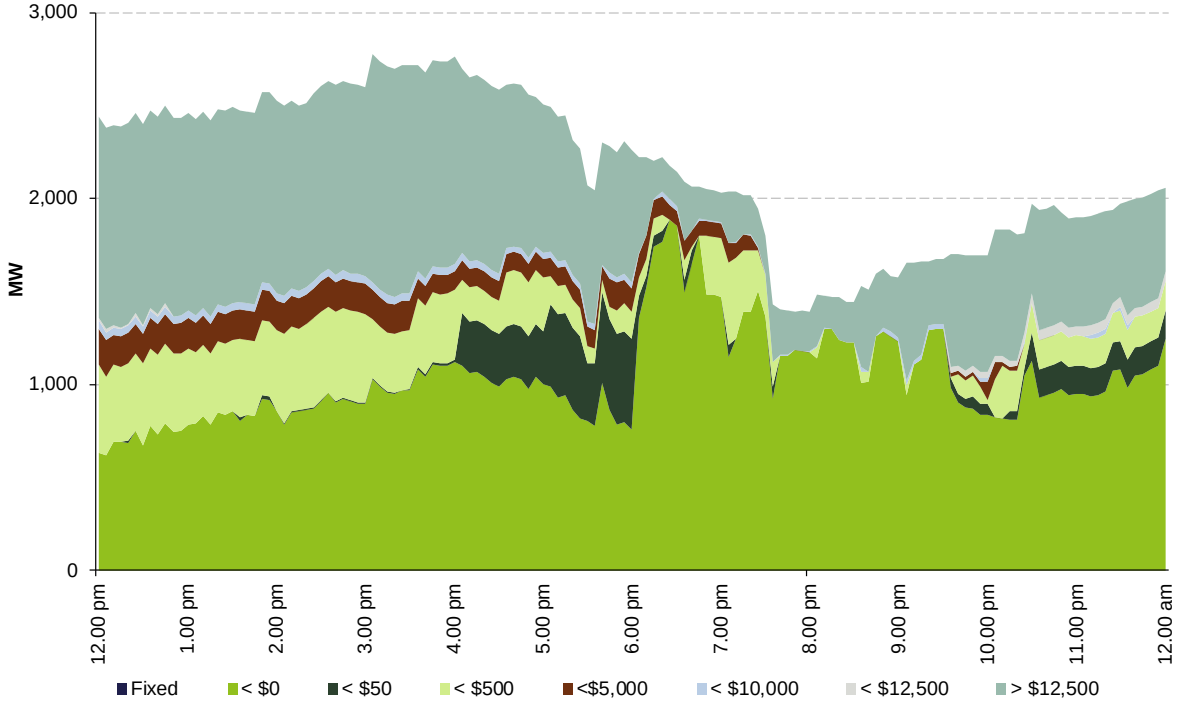
At around 5.10 pm a fire in the Torrens Island switchyard caused Barker Inlet power station to trip, removing 193 MW of available capacity all priced below $61/MWh.[1]

Units 2, 3 and 4 at TIPS B were online at the time but there was a risk that the station could trip so at times AEMO limited the total output of the station to 40 MW and capped output to 270 MW.

In response to Barker Inlet's trip AGL added 160 MW of capacity at TIPS B3 at 5.40 pm and other participants shifted capacity into lower price bands due to high forecast prices.

Figure 1 shows offers from midday to midnight in South Australia. A number of price bands reduced throughout the evening leaving most generation offered below $0/MWh or above $12,500/MWh. This means if demand increases slightly or there is drop in low priced generation by capacity being rebid unavailable or from low to high prices, the dispatch price can easily be set above $12,500/MWh. During the high price periods the amount of high priced capacity that was required was between 2 MW and 110 MW.

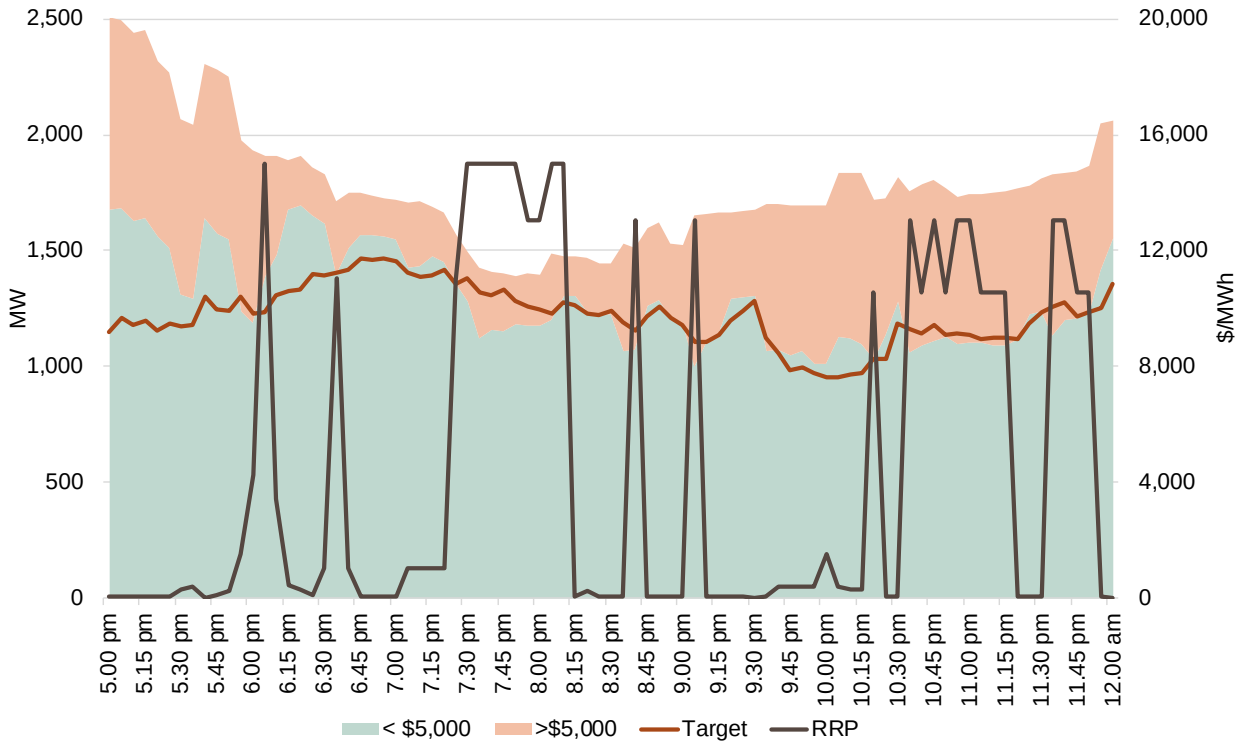
Figure 1: Spread of offers in South Australia



[1] https://www.aemo.com.au/-/media/files/electricity/nem/market_notices_and_events/power_system_incident_reports/2021/preliminary-report-torrens-island-275-kv-west-busbar-trip.pdf

Figure 2 shows how much effective available capacity was offered above and below $5,000/MWh and how much local generation was targeted to meet demand in South Australia. Capacity that could not get dispatched during the high prices due to technical or ramp constraints has been removed from the stack. It also shows that at times only a small amount of capacity priced above $5,000/MWh was required to be dispatched.

Figure 2: Generation availability above and below $5,000/MWh, target and dispatch price



3.4 7.30 pm to 8.30 pm

Following the fire in the switchyard, burning oil flowed into the cable trenches and damaged communication and control equipment for units 3 and 4 at TIPS B. As a safety precaution, AEMO ramped both units down from 7.20 pm. The loss of generation was initially replaced by the Hornsdale battery and unit 1 at TIPS B.

However over a number of rebids effective from 7.25 pm NEOEN removed all of Hornsdale's capacity (80 MW), priced at $1,015/MWh for the rest of the day, due to a change in forecast prices. As units TIPS B 3 and 4 continued to ramp down, the price increased to $11,000/MWh.

At 7.30 pm TIPS B2 removed 140 MW of capacity priced at the floor, the reason related to plant stability issues. As a result the dispatch price increased further to $15,000/MWh. At 7.35 pm a further 400 MW of capacity was reduced at TIPS B due to the fire and prices stayed above $13,000/MWh until the 8.15 pm dispatch interval.

By 8.15 pm, falling demand meant high priced capacity in South Australia was no longer required and prices dropped to below $250/MWh.

The loss of generation from Barker Inlet, TIPS B and the Hornsdale battery along with very low wind generation meant South Australia was running short of spare capacity from around 7.30 pm.

AEMO issued a market notice advising the market that only 131 MW of spare capacity was available from 7.30 pm. By 8.30 pm there was enough spare capacity to cancel the notice.

3.5 11 pm to midnight

Prices exceeded $5,000/MWh again from 11 pm to midnight. These prices were forecast once the constraint that limited total generation from TIPS B to 270 MW was in place. While AGL had rebid TIPS B available throughout the evening it was still having its output limited by AEMO.

There was also rebidding by participants making capacity unavailable for technical reasons and rebidding of capacity from low to high prices (Appendix B).

- Engie made additional capacity available at Pelican Point, some priced low and some priced at $13,044/MWh which set price on numerous occasions.
- At around 10.14 pm Engie rebid 21 MW of capacity at Snuggery unit 1 from prices below $5,000/MWh to above $13,000/MWh, in response to forecast prices.
- At around 10.30 pm, Infigen's Temporary Generator South unit tripped reducing low priced available capacity by 90 MW, effective from 10.35 pm, and the price increased to $13,044/MWh. At 10.45 pm the plant's capacity was reduced a further 28 MW all of which was priced at the floor.

From 10.40 pm a constraint managing system security was limiting TIPS B to a maximum of 270 MW. More than 270 MW of capacity at prices below $5,000/MWh had been offered leaving around 160 MW of low priced capacity unable to make it to market. Then from 11.35 pm demand picked up due to hot water load and prices exceeded $5,000/MWh as forecast.

The closing bids for all participants in South Australia with capacity priced at or above $5,000/MWh for the high-price periods are set out in *Appendix A: Closing bids*.

Any significant rebids are contained in *Appendix B: Significant rebids*.

The generators involved in setting the price during the high-price periods and how that price was determined by the market systems are detailed in *Appendix C: Price Setter.*

Australian Energy Regulator

May 2021

Appendix A: Closing bids

Figure A1 to A6 highlight the half hour closing bids for participants in South Australia with capacity priced at or above $5,000/MWh during the periods in which the spot price exceeded $5,000/MWh. They also show generation output and the spot price.

Figure A1: AGL Energy (Barker Inlet, Dalrymple BESS, The Bluff wind farm, Hallett wind farm, North Brown Hill, Torrens Island) closing bids, dispatch and spot price

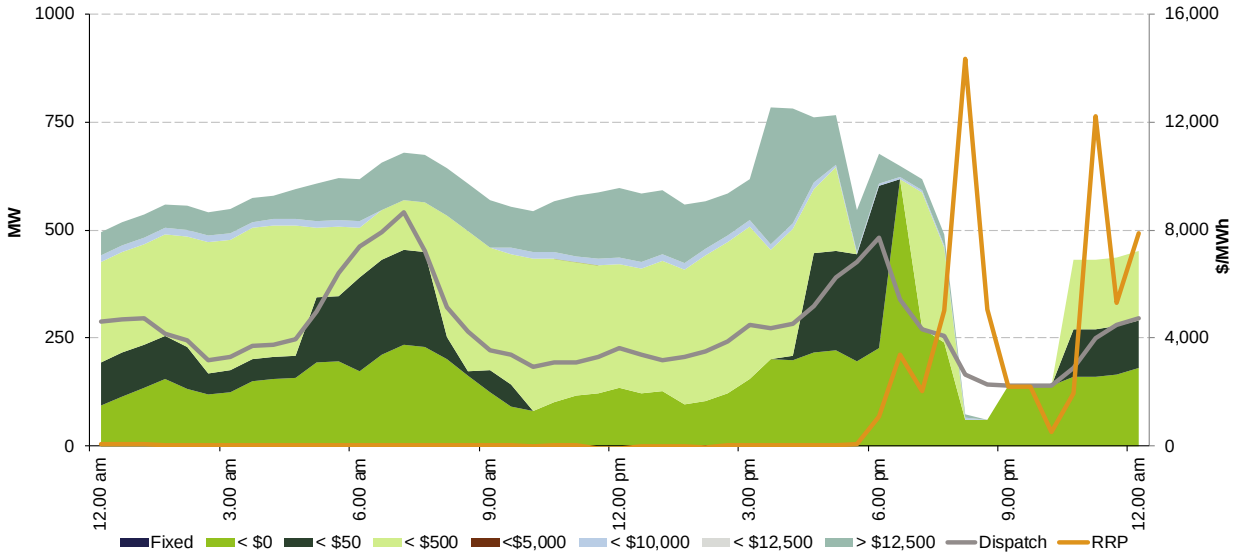


Figure A2: EnergyAustralia (Hallett, Waterloo wind farm) closing bids, dispatch and spot price

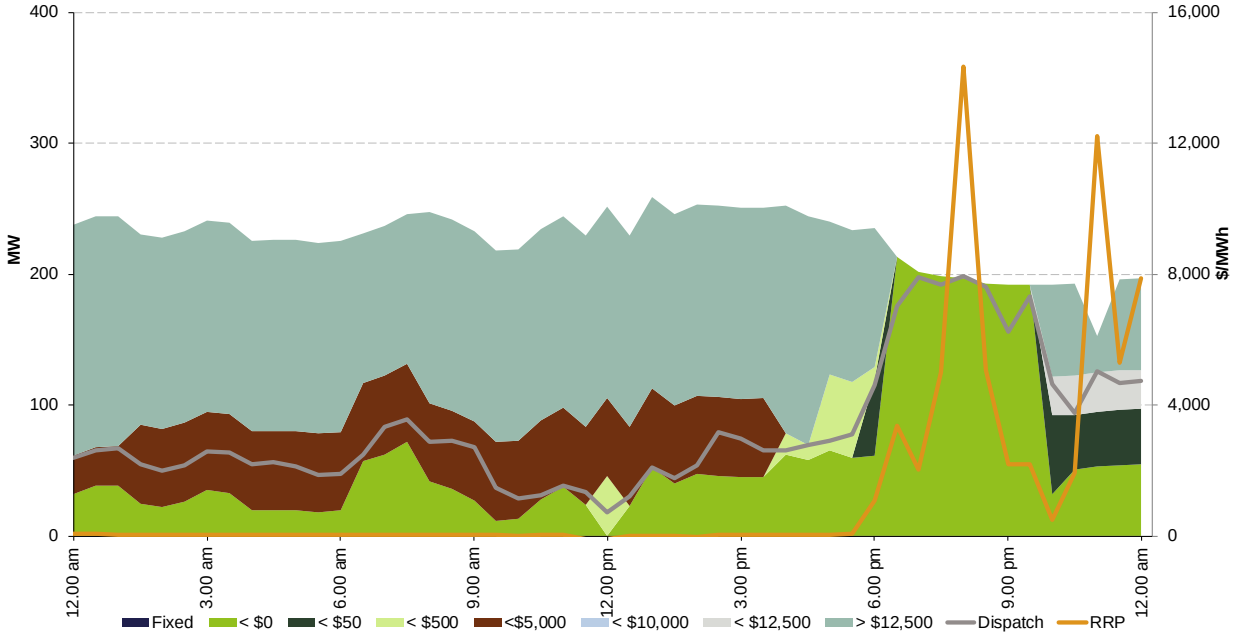


Figure A3: Engie (Dry Creek, Mintaro, Pelican Point, Port Lincoln, Snuggery, Willogoleche wind farm) closing bids, dispatch and spot price

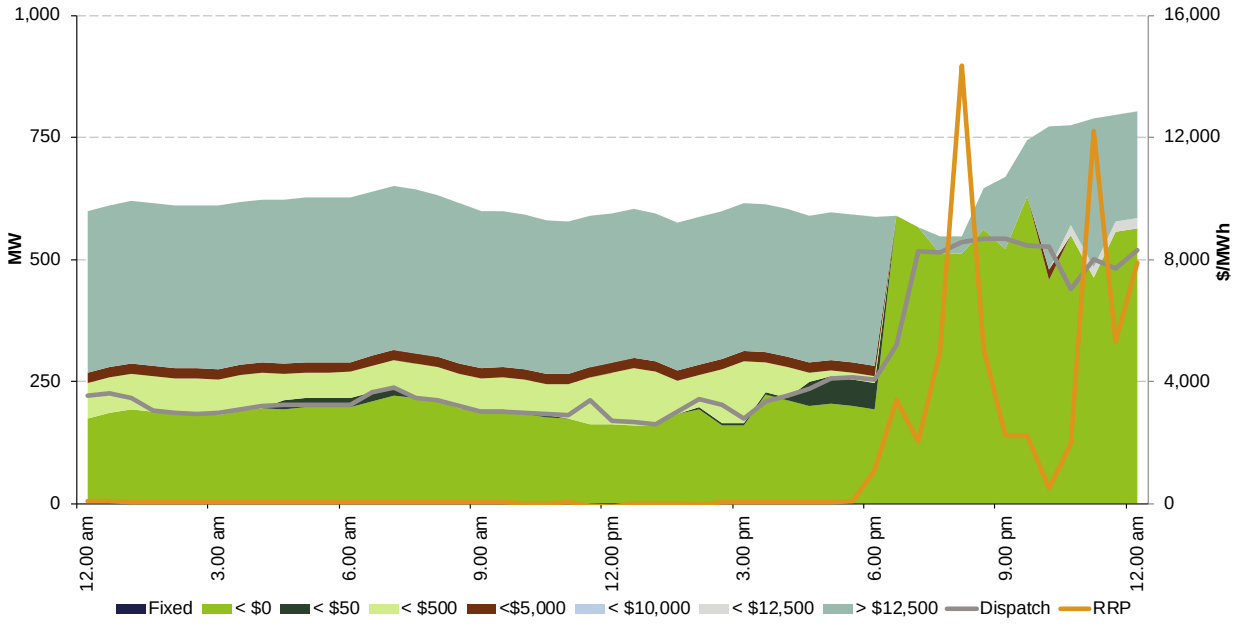


Figure A4: Origin (Ladbroke, Osborne and Quarantine) closing bids, dispatch and spot price

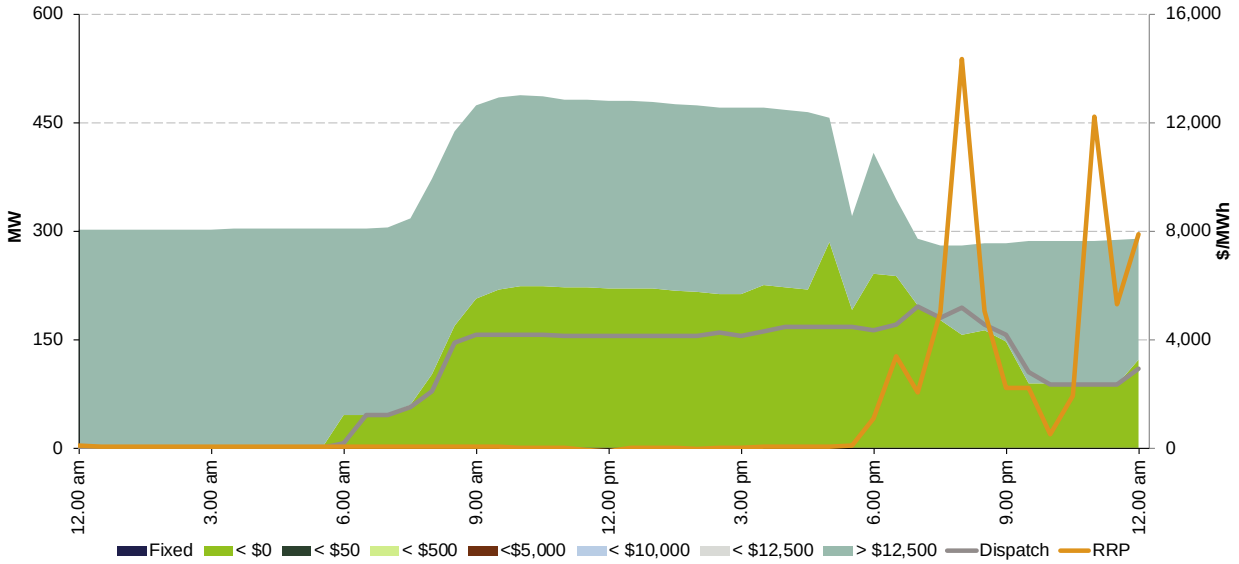


Figure A5: Infigen (Lake Bonney wind farms and battery) closing bids, dispatch and spot price

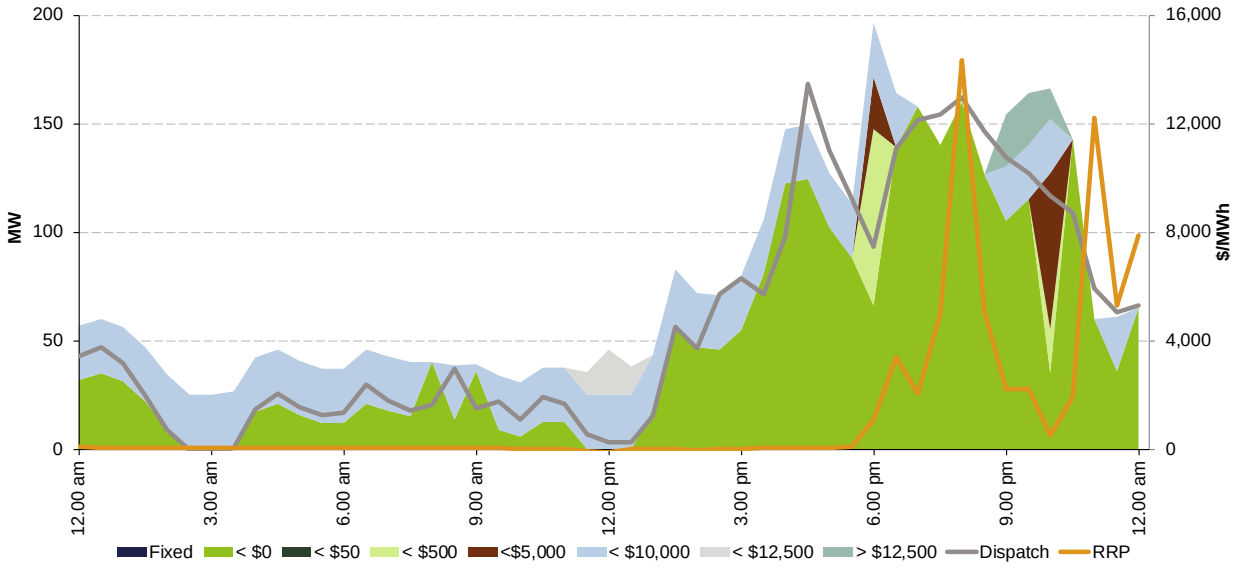
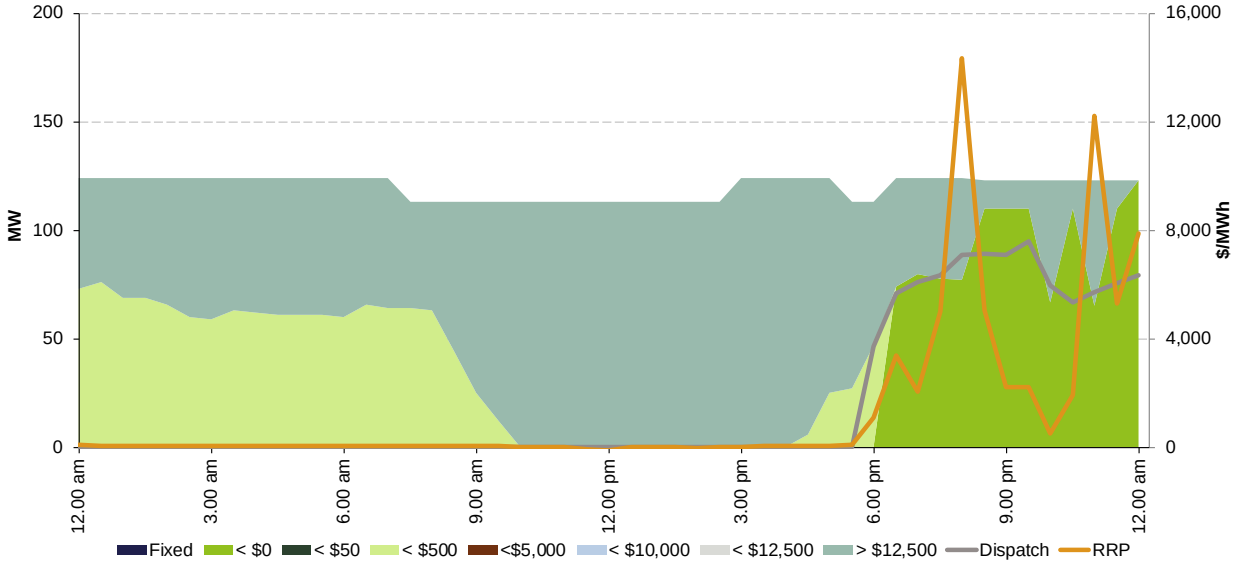


Figure A6: Snowy Hydro (Angaston, Lonsdale, Pt Stanvac) closing bids, dispatch and spot price



Appendix B: 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 maximum capacity involved, the change in the price of the capacity being offered, and the rebid reason.

Table 2: South Australia significant rebids for 7.30 pm trading interval

Submit time	Time effective	Participant	Station	Capacity rebid (MW)	Price from ($/MWh)	Price to ($/MWh)	Rebid reason
5.18 pm		Snowy Hydro	Lonsdale	10	-1,002	15,030	17:18:03 P plant outage - rebalance
5.29 pm		AGL Energy	Torrens	160	N/A	<42	1725~P~010 unexpected/plant limits~112 redist across portfolio BARKIPS1~
5.58 pm		AGL Energy	Barker Inlet Power Station	-193	<61	N/A	1755~P~020 reduction in avail cap~204 unit trip~
6.36 pm		Engie	Pelican Point	-12	-1,000	N/A	1835~P~update avail to 228MW for evaps on-SL~~
6.46 pm		Engie	Pelican Point	33	-1,000	13,044	1756~A~unforecast network constraint: S_TIPSB_N-2 - portfolio redistribution - SL~~
6.56 pm	7.05 pm	Engie	Port Lincoln	-17	-1,000	N/A	1850~P~S^NIL_PL_max - PL constraint- SL~~
7.16 pm	7.25 pm	Neoen	Hornsdale Power Reserve Unit 1	-70	1,015	N/A	1916 a change in forecast prices
7.21 pm	7.30 pm	Neoen	Hornsdale Power Reserve Unit 1	-10	1,015	N/A	1921 a change in forecast prices
7.22 pm	7.30 pm	AGL Energy	Torrens Island	-140	-1,000	N/A	1915~P~010 unexpected/plant limits~101 unit stability issue~

Table 3: South Australia significant rebids for 8 pm trading interval

Submit time	Time effective	Participant	Station	Capacity rebid (MW)	Price from ($/MWh)	Price to ($/MWh)	Rebid reason
5.18 pm		Snowy Hydro	Lonsdale	10	-1,002	15,030	17:18:03 P plant outage - rebalance
5.29 pm		AGL Energy	Torrens Island	160	N/A	<42	1725~P~010 unexpected/plant limits~112 redist across portfolio barkips1~
5.54 pm		AGL Energy	Torrens Island	45	15,000	-1,000	1750~A~060 unfcast network constraint~61 constr off out of merit order - s_tipsb_270~
5.58 pm		AGL Energy	Barker Inlet Power Station	-193	<61	N/A	1755~P~020 reduction in avail cap~204 unit trip~

Submit time	Time effective	Participant	Station	Capacity rebid (MW)	Price from ($/MWh)	Price to ($/MWh)	Rebid reason
6.36 pm		Engie	Pelican Point	-12	-1,000	N/A	1835~P~update avail to 228MW for evaps on-sl~~
6.46 pm		Engie	Pelican Point	33	-1,000	13,044	1756~A~unforecast network constraint: s_tipsb_n-2 - portfolio redistribution - sl~~
7.07 pm		Neoen	Hornsdale Power Reserve Unit 1	-5	1,015	N/A	1906 a change in forecast prices
7.11 pm		Neoen	Hornsdale Power Reserve Unit 1	-9	1,015	N/A	1911 a change in forecast prices
7.16 pm		Neoen	Hornsdale Power Reserve Unit 1	-49	1,015	N/A	1916 A change in forecast prices
7.21 pm		Neoen	Hornsdale Power Reserve Unit 1	-10	1,015	N/A	1921 A change in forecast prices
7.22 pm		AGL Energy	Torrens Island	-140	-1,000	N/A	1915~P~010 unexpected/plant limits~101 unit stability issue~
7.24 pm	7.35 pm	AGL Energy	Torrens Island	-400	<248	N/A	1705~A~060 unfcast network constraint~61 constr off due to fire in switchyard~

Table 4: South Australia significant rebids for 8.30 pm trading interval

Submit time	Time effective	Participant	Station	Capacity rebid (MW)	Price from ($/MWh)	Price to ($/MWh)	Rebid reason
5.29 pm		AGL Energy	Torrens Island	160	N/A	<42	1725~P~010 unexpected/plant limits~112 redist across portfolio barkips1~
5.54 pm		AGL Energy	Torrens Island	75	15,000	-1,000	1750~A~060 unfcast network constraint~61 constr off out of merit order - s_tipsb_270~
5.58 pm		AGL Energy	Barker Inlet Power Station	-193	<61	N/A	1755~P~020 reduction in avail cap~204 unit trip~
6.36 pm		Engie	Pelican Point	-12	-1,000	N/A	1835~P~update avail to 228MW for evaps on-sl~~
6.37 pm		Neoen	Hornsdale Power Reserve Unit 1	-21	1,015	N/A	1836 a change in forecast prices
6.46 pm		Engie	Pelican Point	33	-1,000	13,044	1756~A~unforecast network constraint: s_tipsb_n-2 - portfolio redistribution - sl~~
6.56 pm		Engie	Port Lincoln	-17	-1,000	N/A	1850~P~s^nil_pl_max - pl constraint- SL~~

Submit time	Time effective	Participant	Station	Capacity rebid (MW)	Price from ($/MWh)	Price to ($/MWh)	Rebid reason
7.07 pm		Neoen	Hornsdale Power Reserve Unit 1	-4	1,015	N/A	1906 a change in forecast prices
7.16 pm		Neoen	Hornsdale Power Reserve Unit 1	-44	1,015	N/A	1916 A change in forecast prices
7.21 pm		Neoen	Hornsdale Power Reserve Unit 1	-10	1,015	N/A	1921 A change in forecast prices
7.22 pm		AGL Energy	Torrens Island	-140	-1,000	N/A	1915~P~010 unexpected/plant limits~101 unit stability issue~
7.24 pm		AGL Energy	Torrens Island	-400	<248	N/A	1705~A~060 unfcast network constraint~61 constr off due to fire in switchyard~
7.57 pm	8.05 pm	Engie	Pelican Point	98	N/A	-1,000	1955~A~response to 5mpd- $13044.44- sl~~

Table 5: South Australia significant rebids for 11 pm trading interval

Submit time	Time effective	Participant	Station	Capacity rebid (MW)	Price from ($/MWh)	Price to ($/MWh)	Rebid reason
7.07 pm		Neoen	Hornsdale Power Reserve Unit 1	-4	1,015	N/A	1906 A change in forecast prices
7.16 pm		Neoen	Hornsdale Power Reserve Unit 1	-59	1,015	N/A	1916 A change in forecast prices
7.21 pm		Neoen	Hornsdale Power Reserve Unit 1	-10	1,015	N/A	1921 A change in forecast prices
7.22 pm		AGL Energy	Torrens Island	-140	<62	N/A	1915~P~010 unexpected/plant limits~101 unit stability issue~
7.24 pm		AGL Energy	Torrens Island	-400	<62	N/A	1705~A~060 unfcast network constraint~61 constr off due to fire in switchyard~
7.53 pm		AGL Energy	Barker Inlet Power Station	-193	<350	N/A	1915~P~020 reduction in avail cap~207 outage schedule change~
8.38 pm		AGL Energy	Torrens Island	80	N/A	-1,000	2016~P~010 unexpected/plant limits~113 availability statement - revised min load on advice from electranet~
9.07 pm		Snowy Hydro	Pt Stanvac	45	-1,004	15,060	21:07:05 P manage fuel supplies - rebalance sa diesel portfolio

Submit time	Time effective	Participant	Station	Capacity rebid (MW)	Price from ($/MWh)	Price to ($/MWh)	Rebid reason
9.42 pm		Engie	Pelican Point	69	N/A	>13,044	2125~A~respond to 5mpd $379 at di2145-sl~~
9.54 pm		AGL Energy	Torrens Island	130	N/A	62	2150~P~030 increase in avail cap~301 plant limit lifted~
10.14 pm		Engie	Snuggery	21	1,750	13,100	2210~A~respond to 5mpd- $278 at di2215-sl~~
10.22 pm		AGL Energy	Torrens Island	160	N/A	<62	2215~A~040 chg in aemo disp~46 price increase vs pd [sa] $10578.87 22:20 vs $379 pd~
10.27 pm	10.35 pm	Infigen Energy	Temporary Generation South	-90	-1003	N/A	2225~P~change in plant availability plant trip sl~~
10.45 pm	10.55 pm	Infigen Energy	Temporary Generation South	-28	-1003	N/A	2235~P~change in plant availability unit trip sl~~

Table 6: South Australia significant rebids for 11.30 pm trading interval

Submit time	Time effective	Participant	Station	Capacity rebid (MW)	Price from ($/MWh)	Price to ($/MWh)	Rebid reason
7.07 pm		Neoen	Hornsdale Power Reserve Unit 1	-4	1,015	N/A	1906 A change in forecast prices
7.16 pm		Neoen	Hornsdale Power Reserve Unit 1	-66	1,015	N/A	1916 A change in forecast prices
7.21 pm		Neoen	Hornsdale Power Reserve Unit 1	-10	1,015	N/A	1921 A change in forecast prices
7.22 pm		AGL Energy	Torrens Island	-140	<62	N/A	1915~P~010 unexpected/plant limits~101 unit stability issue~
7.24 pm		AGL Energy	Torrens Island	-400	<62	N/A	1705~A~060 unfcast network constraint~61 constr off due to fire in switchyard~
7.53 pm		AGL Energy	Barker Inlet Power Station	-193	<119	N/A	1915~P~020 reduction in avail cap~207 outage schedule change~
8.38 pm		AGL Energy	Torrens Island	80	N/A	-1,000	2016~P~010 unexpected/plant limits~113 availability statement - revised min load on advice from electranet~
9.25 pm		Engie	Snuggery	20	N/A	>1,750	2120~P~update avail for snug 1/3- sl~~
9.42 pm		Engie	Pelican Point	69	N/A	>13,044	2125~A~respond to 5mpd $379 at di2145-sl~~

Submit time	Time effective	Participant	Station	Capacity rebid (MW)	Price from ($/MWh)	Price to ($/MWh)	Rebid reason
9.54 pm		AGL Energy	Torrens Island	130	N/A	62	2150~P~030 increase in avail cap~301 plant limit lifted~
10.14 pm		Engie	Snuggery	21	1,750	13,100	2210~A~respond to 5mpd- $278 at di2215-sl~~
10.22 pm		AGL Energy	Torrens Island	160	N/A	<62	2215~A~040 chg in aemo disp~46 price increase vs pd [sa] $10578.87 22:20 vs $379 pd~
10.28 pm		Engie	Pelican Point	14	N/A	>13,044	2227~A~respond to 5mpd $10578.87 at di2235-
10.31 pm		Infigen Energy	Temporary Generation South	-90	380	N/A	2230~P~change in plant availability incr from expected sl~~
10.45 pm		Infigen Energy	Temporary Generation South	-28	-1,003	N/A	2235~P~change in plant availability unit trip sl~~

Table 7: South Australia significant rebids for midnight trading interval

Submit time	Time effective	Participant	Station	Capacity rebid (MW)	Price from ($/MWh)	Price to ($/MWh)	Rebid reason
7.16 pm		Neoen	Hornsdale Power Reserve Unit 1	-66	1,015	N/A	1916 A change in forecast prices
7.21 pm		Neoen	Hornsdale Power Reserve Unit 1	-10	1,015	N/A	1921 A change in forecast prices
7.53 pm		AGL Energy	Barker Inlet Power Station	-193	<119	N/A	1915~P~020 reduction in avail cap~207 outage schedule change~
8.38 pm		AGL Energy	Torrens Island	80	N/A	-1,000	2016~P~010 unexpected/plant limits~113 availability statement - revised min load on advice from electranet~
9.54 pm		AGL Energy	Torrens Island	130	N/A	62	2150~P~030 increase in avail cap~301 plant limit lifted~
10.14 pm		Engie	Snuggery	21	1,750	13,100	2210~A~respond to 5mpd- $278 at di2215-sl~~
10.22 pm		AGL Energy	Torrens Island	160	N/A	<62	2215~A~040 chg in aemo disp~46 price increase vs pd [sa] $10578.87 22:20 vs $379 pd~
10.28 pm		Engie	Pelican Point	31	N/A	>13,044	2227~A~respond to 5mpd $10578.87 at di2235-

Submit time	Time effective	Participant	Station	Capacity rebid (MW)	Price from ($/MWh)	Price to ($/MWh)	Rebid reason
10.31 pm		Infigen Energy	Temporary Generation South	-72	380	N/A	2230~P~change in plant availability incr from expected sl~~
10.45 pm		Infigen Energy	Temporary Generation South	-28	-1,003	N/A	2235~P~change in plant availability unit trip sl~~

Appendix C: Price setter

The following tables identify for the trading interval in which the spot price exceeded $5,000/MWh, each 5 minute dispatch interval price and the generating units involved in setting the energy price. This information is published by AEMO.[2] The 30-minute spot price is the average of the 6 dispatch interval prices.

Table 8: South Australia price setter 7.30 pm

DI	Dispatch Price ($/MWh)	Participant	Unit	Service	Offer price ($/MWh)	Marginal change	Contribution
19:05	1,015.13	NEON	HPRG1	Energy	1,015.13	1.00	1,015.13
19:10	1,015.13	NEON	HPRG1	Energy	1,015.13	1.00	1,015.13
19:15	1,015.13	NEON	HPRG1	Energy	1,015.13	1.00	1,015.13
19:20	1,015.13	NEON	HPRG1	Energy	1,015.13	1.00	1,015.13
19:25	11,000.00	Infigen	LBBL1	Load	-11,000.00	-1.00	11,000.00
19:30	15,000.00	Origin Energy	QPS3	Energy	15,000.00	0.31	4,650.00
		Origin Energy	QPS4	Energy	15,000.00	0.34	5,100.00
		Snowy Hydro	LONSDALE	Energy	15,000.00	0.36	5,400.00
Spot Price		**$5,010/MWh**					

Table 9: South Australia price setter 8 pm

DI	Dispatch Price ($/MWh)	Participant	Unit	Service	Offer price ($/MWh)	Marginal change	Contribution
19:35	$ 15,000.00	Origin Energy	LADBROK1	Energy	15,000.00	0.16	$2,400.00
		Origin Energy	QPS3	Energy	15,000.00	0.06	$900.00
		Origin Energy	QPS4	Energy	15,000.00	0.06	$900.00
		Origin Energy	QPS5	Energy	15,000.00	0.08	$1,200.00
		EnergyAustralia	AGLHAL	Energy	15,000.00	0.41	$6,150.00
		Snowy Hydro	ANGAST1	Energy	15,000.00	0.16	$2,400.00
		Snowy Hydro	LONSDALE	Energy	15,000.00	0.07	$1,050.00
19:40	$ 15,000.00	Origin Energy	LADBROK2	Energy	15,000.00	0.17	$2,550.00
		Origin Energy	QPS3	Energy	15,000.00	0.07	$1,050.00
		Origin Energy	QPS4	Energy	15,000.00	0.08	$1,200.00
		Origin Energy	QPS5	Energy	15,000.00	0.10	$1,500.00
		Engie	DRYCGT2	Energy	15,000.00	0.06	$900.00
		Snowy Hydro	ANGAST1	Energy	15,000.00	0.19	$2,850.00
		Snowy Hydro	LONSDALE	Energy	15,000.00	0.08	$1,200.00
		Snowy Hydro	PTSTAN1	Energy	15,000.00	0.25	$3,750.00
19:45	$ 15,000.00	Origin Energy	LADBROK1	Energy	15,000.00	0.22	$3,300.00
		Origin Energy	LADBROK2	Energy	15,000.00	0.20	$3,000.00

[2] Details on how the price is determined can be found at www.aemo.com.au

DI	Dispatch Price ($/MWh)		Participant	Unit	Service	Offer price ($/MWh)	Marginal change	Contribution
			Origin Energy	QPS3	Energy	15,000.00	0.08	$1,200.00
			Origin Energy	QPS4	Energy	15,000.00	0.09	$1,350.00
			Origin Energy	QPS5	Energy	15,000.00	0.11	$1,650.00
			Snowy Hydro	ANGAST1	Energy	15,000.00	0.22	$3,300.00
			Snowy Hydro	LONSDALE	Energy	15,000.00	0.09	$1,350.00
19:50	$	15,000.00	Origin Energy	LADBROK2	Energy	15,000.00	0.17	$2,550.00
			Origin Energy	QPS3	Energy	15,000.00	0.07	$1,050.00
			Origin Energy	QPS4	Energy	15,000.00	0.08	$1,200.00
			Origin Energy	QPS5	Energy	15,000.00	0.10	$1,500.00
			Engie	DRYCGT2	Energy	15,000.00	0.06	$900.00
			Snowy Hydro	ANGAST1	Energy	15,000.00	0.19	$2,850.00
			Snowy Hydro	LONSDALE	Energy	15,000.00	0.08	$1,200.00
			Snowy Hydro	PTSTAN1	Energy	15,000.00	0.25	$3,750.00
19:55	$	13,044.44	Engie	PPCCGT	Energy	13,044.44	1.00	$13,044.44
20:00	$	13,044.44	Engie	PPCCGT	Energy	13,044.44	1.00	$13,044.44
Spot Price			**$14,348/MWh**					

Table 10: South Australia price setter 8.30 pm

DI	Dispatch Price ($/MWh)		Participant	Unit	Service	Offer price ($/MWh)	Marginal change	Contribution
20:05	$	15,000.00	Origin Energy	LADBROK2	Energy	15,000.00	0.12	$1,800.00
			Origin Energy	QPS3	Energy	15,000.00	0.05	$750.00
			Origin Energy	QPS4	Energy	15,000.00	0.05	$750.00
			Origin Energy	QPS5	Energy	15,000.00	0.14	$2,100.00
			EnergyAustralia	AGLHAL	Energy	15,000.00	0.44	$6,600.00
			Snowy Hydro	ANGAST1	Energy	15,000.00	0.13	$1,950.00
			Snowy Hydro	LONSDALE	Energy	15,000.00	0.06	$900.00
20:10	$	15,000.00	Origin Energy	LADBROK2	Energy	15,000.00	0.22	$3,300.00
			Origin Energy	QPS3	Energy	15,000.00	0.09	$1,350.00
			Origin Energy	QPS4	Energy	15,000.00	0.10	$1,500.00
			Origin Energy	QPS5	Energy	15,000.00	0.26	$3,900.00
			Snowy Hydro	ANGAST1	Energy	15,000.00	0.24	$3,600.00
			Snowy Hydro	LONSDALE	Energy	15,000.00	0.10	$1,500.00
20:15	$	64.69	Origin Energy	ER03	Energy	39.15	1.08	$42.28
			Stanwell	TARONG#2	Raise	20.68	1.08	$22.33
			Origin Energy	ER03	Raise	0.00	-1.08	$0.00
20:20	$	249.00	Infigen	LBBL1	Load	-249.00	-1.00	$249.00
20:25	$	45.82	Hydro Tasmania	REECE2	Energy	32.20	1.42	$45.72
			Basslink	T-V-	Energy	0.01	1.34	$0.01
20:30	$	37.34	Origin Energy	ER02	Energy	35.58	1.05	$37.36
Spot Price			**$5,066/MWh**					

Table 11: South Australia price setter 11 pm

DI	Dispatch Price ($/MWh)	Participant	Unit	Service	Offer price ($/MWh)	Marginal change	Contribution
22:35	$ 13,044.44	Engie	PPCCGT	Energy	13,044.44	1.00	$13,044.44
22:40	$ 10,578.87	EnergyAustralia	AGLHAL	Energy	10,578.87	1.00	$10,578.87
22:45	$ 13,044.44	Engie	PPCCGT	Energy	13,044.44	1.00	$13,044.44
22:50	$ 10,578.87	EnergyAustralia	AGLHAL	Energy	10,578.87	1.00	$10,578.87
22:55	$ 13,044.44	Engie	PPCCGT	Energy	13,044.44	1.00	$13,044.44
23:00	$ 13,044.44	Engie	PPCCGT	Energy	13,044.44	1.00	$13,044.44
Spot Price		**$12,223/MWh**					

Table 12: South Australia price setter 11.30 pm

DI	Dispatch Price ($/MWh)	Participant	Unit	Service	Offer price ($/MWh)	Marginal change	Contribution
23:05	$ 10,578.87	EnergyAustralia	AGLHAL	Energy	10,578.87	1.00	$10,578.87
23:10	$ 10,578.87	EnergyAustralia	AGLHAL	Energy	10,578.87	1.00	$10,578.87
23:15	$ 10,578.87	EnergyAustralia	AGLHAL	Energy	10,578.87	1.00	$10,578.87
23:20	$ 45.61	Delta Electricity	VP5	Energy	39.12	1.17	$45.77
23:25	$ 35.56	AGL Energy	BW01	Energy	35.47	0.42	$14.90
		AGL Energy	BW03	Energy	35.47	0.58	$20.57
23:30	$ 34.64	AGL Energy	BW01	Energy	35.47	0.41	$14.54
		AGL Energy	BW03	Energy	35.47	0.57	$20.22
Spot Price		**$5,309/MWh**					

Table 13: South Australia price setter midnight

DI	Dispatch Price ($/MWh)	Participant	Unit	Service	Offer price ($/MWh)	Marginal change	Contribution
23:35	$ 13,044.44	Engie	PPCCGT	Energy	13,044.44	1.00	$13,044.44
23:40	$ 13,044.44	Engie	PPCCGT	Energy	13,044.44	1.00	$13,044.44
23:45	$ 10,578.87	EnergyAustralia	AGLHAL	Energy	10,578.87	1.00	$10,578.87
23:50	$ 10,578.87	EnergyAustralia	AGLHAL	Energy	10,578.87	1.00	$10,578.87
23:55	$ 36.62	Snowy Hydro	MURRAY	Energy	30.00	1.22	$36.60
00:00	$ 28.80	Hydro Tasmania	POAT110	Energy	25.24	1.20	$30.29
		Hydro Tasmania	TUNGATIN	Energy	11.22	-0.23	-$2.58
		Basslink	T-V-	Energy	0.00	-0.97	$0.00
		Delta Electricity	VP5	Lower	14.00	-0.61	-$8.54
		Hydro Tasmania	POAT110	Lower	2.50	0.61	$1.53
		CS Energy	GSTONE6	Raise 60	7.73	0.97	$7.50
		Hydro Tasmania	TUNGATIN	Raise 60	1.73	0.39	$0.67
		Hydro Tasmania	POAT110	Raise 60	0.61	-0.39	-$0.24
Spot Price		**$7,885/MWh**					