

Electricity prices above \$5,000/MWh January to March 2023

June 2023

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Contents

Obligation	1
Summary	2
1 31 January 2023, Queensland	3
1.1 Overview of market conditions	3
1.2 Rebidding contributed to the high price	6
2 9,15 and 16 February 2023, South Australia	7
2.1 Overview of market conditions	7
2.2 Rebidding contributed to high prices	11
3 1 March 2023, Queensland	13
3.1 Overview of market conditions	13
3.2 Rebidding contributed to the high price	16
4 16 and 17 March 2023, Queensland and NSW	18
4.1 Overview of market conditions	19
4.2 Rebidding contributed to the high prices	23
4.3 Attachment – Significant rebids.....	26

Obligation

The Australian Energy Regulator (AER) has an obligation under the National Electricity Rules (energy rules) to monitor and report on significant price outcomes in the National Energy Market (NEM). The energy rules require us to produce a guideline for how we report significant price events.¹ Our guideline commits us to reporting whenever the 30-minute price exceeds \$5,000 per megawatt hour (\$/MWh).²

This report describes the significant factors contributing to 30-minute prices exceeding \$5,000/MWh, considering market conditions, available generation capacity, network availability, as well as offer and rebidding behaviour.

¹ AER, [Significant price reporting guidelines](#), September 2022.

² A trading interval is a 5 minute period and the spot price is the price for a trading interval. The 30-minute price is the average of 6 trading intervals.

Summary

30-minute prices exceeded \$5,000/MWh 12 times over January to March 2023 – 5 times in Queensland, 3 in NSW and 4 in South Australia. This compares to 16 high prices over the same period last year, when 30-minute prices exceeded \$5,000/MW 12 times in Queensland alone. The common drivers of the high prices were high demand, limited access to imports from a neighbouring region and rebids.

Common drivers of high price events

Date and region	Demand	Interconnector	Rebids
31 Jan Qld	yes	yes, limited imports from NSW	yes
9, 15 & 16 Feb SA	yes	yes, limited imports from Vic	yes on 9 and 15, no on 16
1 Mar Qld	yes	yes, limited imports from NSW	yes
16 & 17 Mar, Qld & NSW	yes	yes, limited imports from Vic	yes

Generally, it requires a combination of factors to drive prices above \$5,000/MWh.

On 31 January and 1 March in Queensland, there were constraints on the interconnectors between NSW and Queensland which limited access to cheaper generation from NSW. Further, there was little, or no capacity offered between \$5,000/MWh and \$15,500/MWh in the region, which meant small changes in demand or offers had a significant impact on price.

On 9, 15 and 16 February in South Australia, wind output was low and network limitations meant the region had limited access to cheaper generation from Victoria.

On 16 and 17 March in Queensland and NSW, there were a lot of generator outages (mainly planned), close to record demand in Queensland, and imports from Victoria were very limited due to a network outage.

While high demand and tight market conditions were the key drivers of high prices on each of these days, a few participants took the opportunity to put additional pressure on the price by moving or removing some low-priced capacity from the market. This short-term strategic rebidding to capitalise on market conditions had the effect of exacerbating high prices. The ability of these participants to increase price through these rebidding strategies highlights the market power that participants may be able to exercise at certain times. We will continue to monitor trends in rebidding as part of our role in identifying whether there is effective competition in the NEM.

Price spikes, while short in duration, can have a material impact on average quarterly prices. The high price events covered in this report contributed between \$7/MWh to \$12/MWh to the quarterly average prices in Queensland, NSW and South Australia.

1 31 January 2023, Queensland

The wholesale price of electricity exceeded \$5,000/MWh for a 30-minute period on 31 January 2023 in Queensland. Between 6.30 pm and 7 pm that evening, the average 30-minute price reached \$5,674/MWh.

Table 1.1 Breakdown of the 30-minute high price event

Date	Time	Queensland 5-minute price (\$/MWh)
31 Jan	6.35 pm	1,250
	6.40 pm	15,500
	6.45 pm	15,500
	6.50 pm	690
	6.55 pm	552
	7 pm	552
	Average 30-minute price	5,674

A combination of factors drove the high prices:

- Hot temperatures and high humidity drove high demand, greater than forecast.
- Constraints on the interconnectors between NSW and Queensland limited access to cheaper generation from NSW.
- There was little or no capacity offered between \$5,000/MWh and \$15,500/MWh (the price cap) at the time of the high prices, which meant small changes in demand or offers had a significant impact on price. This was known to the market at the time.
- Some participants rebid capacity from low prices to the price cap.

As a result of these factors:

- at 6.40 pm, 36 MW of capacity priced at the cap was needed to meet demand and set the price
- at 6.45 pm, just 3 MW of capacity priced at the cap was needed to meet demand and set the price.

1.1 Overview of market conditions

In Queensland, prices exceeded \$5,000/MWh for one 30-minute interval during the evening of 31 January, which was the start of a 4-day heat wave. Late in the day, AEMO issued a number of actual lack of reserve (LOR) notices for that evening, although not for the high-priced period. AEMO issues LOR notices when the buffer between available generation and demand is low, to encourage participants to offer more generation and large consumers to reduce electricity consumption.

From Table 1.2, we observe:

- the 30-minute price was not forecast to exceed \$5,000/MWh
- actual demand was higher than forecast
- actual availability was lower than forecast.

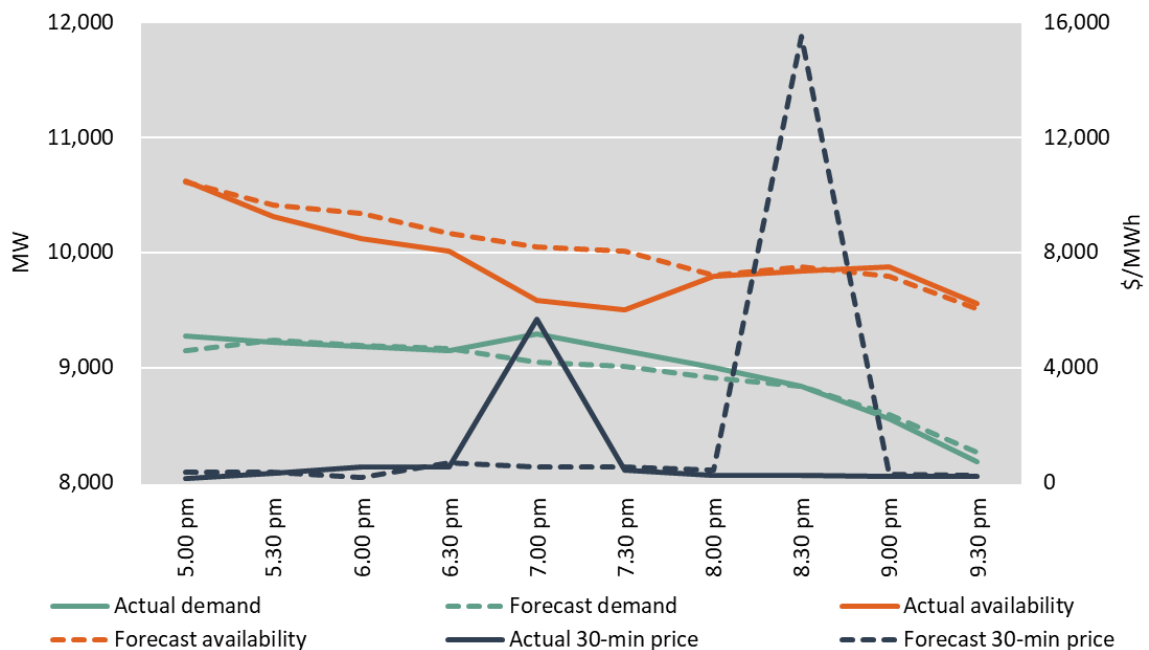
Table 1.2 Actual and forecast 30-minute price, demand and availability in Queensland

Date	Time 30 minutes ending	Price (\$/MWh)		Demand (MW)		Availability (MW)	
		Actual	1 hr forecast	Actual	1 hr forecast	Actual	1 hr forecast
31 Jan	7 pm	5,674	552	9,289	9,051	9,588	10,049

While demand was forecast to fall from 6 pm onwards, it actually increased between 6.30 pm and 7 pm, to 200 MW more than forecast (Figure 1.1), which contributed to the higher than forecast price.

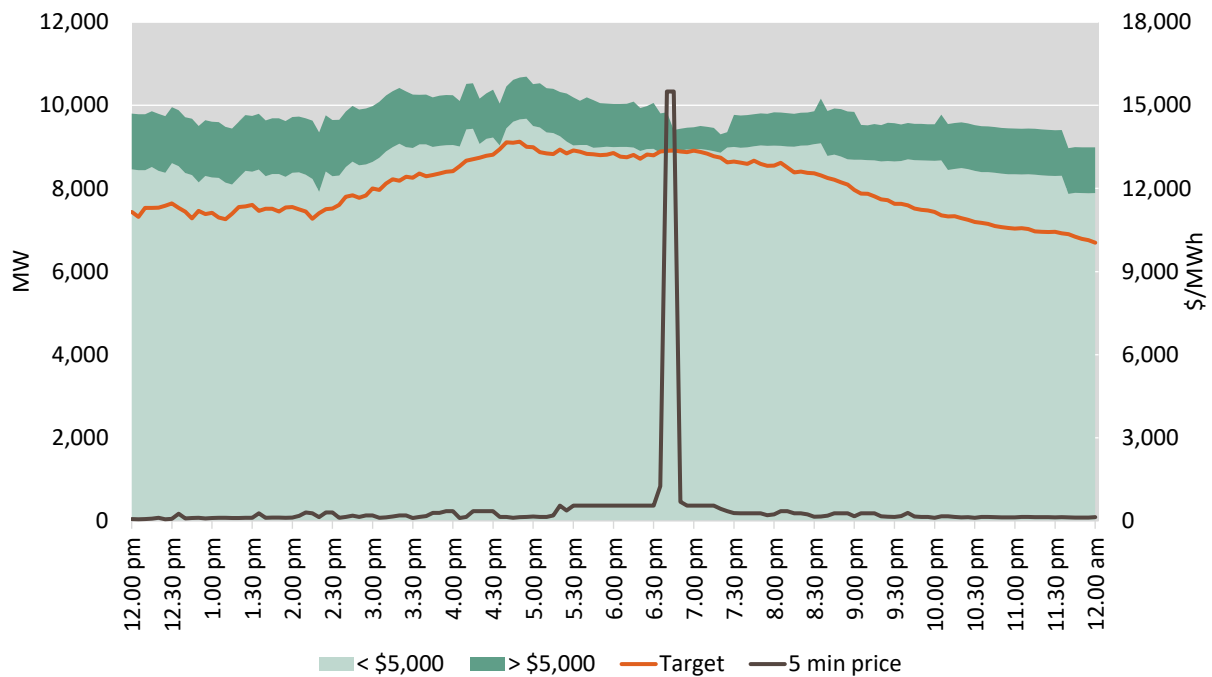
At the same time, actual availability dropped below forecast availability by over 400 MW, because of late capacity withdrawals (section 1.1.2). However, as this capacity had been offered at high prices, its withdrawal from the market did not contribute to the high price.

Figure 1.1 Actual price, demand and availability compared to the 1 hour forecast



Even though most capacity was offered below \$5,000/MWh, at 6.40 pm and 6.45 pm up to 36 MW of capacity priced at the cap was needed to meet demand (Figure 1.2).

Figure 1.2 Effective capacity offered above and below \$5,000/MWh



Source: AER analysis using NEM data.

Note: Capacity available below \$5,000/MWh refers to effective capacity.

1.1.1 High temperatures drove high demand

On 31 January, temperatures in Brisbane hit a maximum of 34°C and stayed fairly high overnight. Conditions were made worse by high humidity.

1.1.2 Less low-priced capacity was available due to outages and technical issues

Around 1,750 MW of low-priced capacity was unavailable at the time, largely due to ongoing black coal generator outages. In addition, some low-priced capacity was withdrawn from the market late in the afternoon, while other low-priced capacity was shifted to the price cap to manage plant issues.

- Around 1,470 MW was unavailable due to ongoing generator outages at Gladstone, Callide B and 2 units at Callide C. These units typically offer most of their capacity at low prices.
- Around 100 MW of low-priced capacity was unavailable due to technical issues at various coal power stations which arose late that afternoon, in part due to the high temperatures.
- Around 170 MW of low-priced capacity was shifted to the price cap to manage technical issues at Stanwell's Tarong North the day before.

Other generators also removed available capacity (over 400 MW) but because this capacity was priced at or near the cap, it did not reduce the amount of low-priced capacity available or contribute to the high price.

1.1.3 Interconnector constraints limited access to cheaper generation from NSW

During the 2 high-priced intervals, flows on Queensland–NSW Interconnector (QNI) were limited to around 500 MW, 200 MW less than its current nominal limit.³ This reduced limit was due to a network outage around Lismore in NSW. The same outage forced flows of around 80 MW on the Terranora interconnector from Queensland to NSW, even though price was higher in Queensland. As a result, Queensland couldn't access more lower-priced generation from NSW.

1.2 Rebidding contributed to the high price

Rebidding by participants contributed to the high price. Rebids by Alinta Energy at Braemar and by Genuity at Millmerran power stations, meant that some high-priced capacity was needed for 2 intervals, setting the price at \$15,500/MWh.

At 4.24 pm, for the 6.40 pm and 6.45 pm intervals, Alinta Energy shifted 120 MW of Braemar's lower priced capacity to the price cap, with its rebid reason related to an increase in the forecast price.⁴ It later shifted 20 MW back down but left 100 MW at the cap for the 6.45 pm interval.

At 5.56 pm, for the 6.40 pm interval, Genuity rebid 70 MW of Millmerran's capacity, from the price floor (-\$1,000/MWh) to the price cap (\$15,500/MWh). Similarly, at 6.39 pm, Genuity submitted a late rebid for the 6.45 pm interval, shifting 70 MW of Millmerran's capacity, from below \$351/MWh to the price cap. Millmerran contributed to setting the price for both these intervals. The reasons provided for both Millmerran's rebids was that the forecast price had increased to \$15,500/MWh.⁵

Information published by AEMO in sensitivity reports from 5 pm onwards showed that an increase in demand, or decrease in low-priced capacity, of between 100 MW to 200 MW would increase the price to \$15,500/MWh.

This short-term strategic rebidding to capitalise on market conditions had the effect of exacerbating high prices in Queensland. While this behaviour may not be a breach of the rules, the ability of these participants to increase price through these rebidding strategies highlights the market power that participants may be able to exercise at certain times.

³ QNI's upgraded capability into Queensland is being progressively increased to 950 MW but the upgrades are still being tested. Its capability for northern flows at the time of the event was 700 MW. [AEMO Queensland-to-NSW Interconnector upgrade, Final inter-network test program document](#).

⁴ Alinta's rebid reasons for shifting 120 MW to higher price bands was '16:20:00~A~Change in price 5PD SL'.

⁵ Genuity's rebid reason was 'QLD1 RRP CHANGE +14810 (17:50 P5 DI 31/01/23 18:40 VALUE 15500 VS 17:45 P5 DI 31/01/23 18:40 VALUE 690) SL'.

2 9,15 and 16 February 2023, South Australia

The wholesale price of electricity exceeded \$5,000/MWh for four 30-minute periods during the evenings of 9, 15 and 16 February in South Australia. This report covers the AER review into these events.

Table 2.1 Summary of 30-minute high price events

Date	Time	Price (\$/MWh)
9 Feb	7 pm	6,295
15 Feb	7 pm	5,318
16 Feb	7.30 pm	8,885
16 Feb	8 pm	5,281

A combination of factors drove these high prices:

- Hot temperatures of around 34°C drove high demand, resulting in greater than forecast demand on 9 and 15 February.
- Extremely low output from wind generation reduced the amount of low-priced capacity available because wind is typically offered at negative prices.
- Network limitations, which impacted the interconnectors, meant that South Australia had limited access to cheaper generation from Victoria:
 - At times the flows on Murraylink into South Australia were around 20% of its nominal limit.
 - Flows on Heywood were, at times, 50 MW lower than its limit of 600 MW.
- Rebidding capacity to higher prices, including from below to above \$5,000/MWh contributed to the 9 and 15 February high prices.
- Withdrawal of some low-priced capacity contributed to the high price on 15 February.

High prices were not forecast for the 9 and 15 February periods. Prices and demand on 16 February were forecast to be high from the first forecast published on the previous day.

2.1 Overview of market conditions

In South Australia, prices exceeded \$5,000/MWh for one 30-minute period during the evening of 9 February and 15 February, and two periods on the evening of 16 February. On 16 February, there was a shortfall in spare capacity within South Australia and AEMO issued a Lack of Reserve level 1 for the region from 7 pm to 7.45 pm.⁶ The drivers behind these prices are largely the same for all days.

⁶ AEMO issues Lack of Reserve notices when the buffer between the forecast availability and forecast demand is insufficient to cover unplanned events. They do this to encourage generators to offer more supply and large consumers to reduce demand.

From Table 2.2 we observe:

- On 9 and 15 February, the high price was not forecast, as actual demand was higher than forecast and actual availability was lower than forecast 1 hour prior. The variance between forecast and actual availability was largely due to significantly lower than forecast wind generation.
- On 16 February, high prices were forecast and eventuated, even though actual demand was lower than forecast and actual availability was slightly higher than forecast.

Table 2.2 Actual price, demand and availability compared to the 1 hour forecast

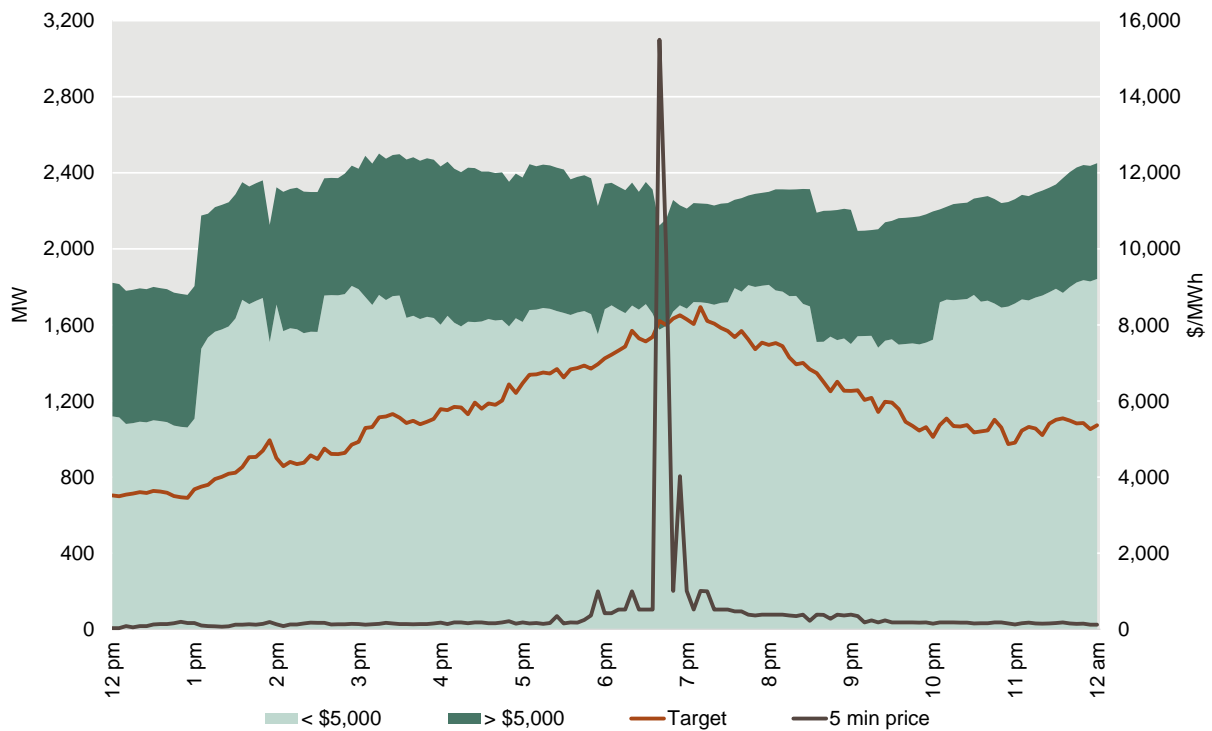
Date	Time	Price (\$/MWh)		Demand (MW)		Availability (MW)	
		Actual	1 hr forecast	Actual	1 hr forecast	Actual	1 hr forecast
9 Feb	7 pm	6,295	232	2,395	2,260	2,223	2,344
15 Feb	7 pm	5,318	380	2,265	2,074	2,250	2,401
16 Feb	7.30 pm	8,885	15,500	2,592	2,775	2,592	2,553
16 Feb	8 pm	5,281	4,025	2,495	2,573	2,612	2,556

Due to high demand, low wind generation and limited imports from Victoria across Murraylink, high-priced capacity was needed.

Even though most capacity was offered below \$5,000/MWh, some high-priced capacity was needed to meet demand (Figure 2.1):

- on 9 and 15 February, between 4 MW and 45 MW of high-priced capacity was needed
- on 16 February, between 16 MW and 109 MW of high-priced capacity was needed.

Figure 2.1 Capacity offered above and below \$5,000/MWh on 15 February



Source: AER analysis using NEM data.

Note: Capacity available below \$5,000/MWh refers to effective capacity. 15 February is provided as an example.

2.1.1 High temperatures drove high demand

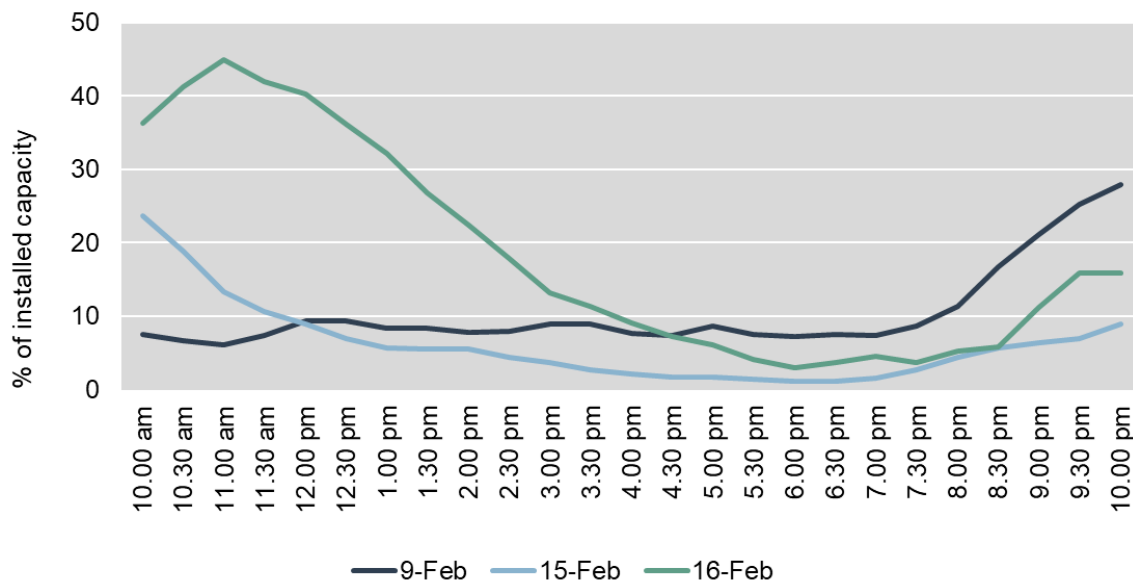
South Australia had high temperatures at the times of the high prices. Temperatures were still 34°C during the evenings of the high prices, driving the use of air conditioners and high demand. Demand for each of the high-priced events was between 2,265 MW and 2,592 MW.

2.1.2 Less low-priced capacity was available due to low wind generation

Wind output was low on all 3 days due to calm conditions. Normally, wind farm capacity is offered at negative prices so the more wind generation there is the more low-priced capacity is available.

There is around 2,300 MW of installed wind farms in South Australia but at the times of the high prices wind generation was extremely low, ranging from 38 MW to 173 MW (under 20% of installed capacity (Figure 2.2)).

Figure 2.2 South Australia wind output as a percentage of installed capacity



Source: AER analysis using NEM data.

On 9 February during the high-priced period, average wind output was 170 MW, 103 MW less than that forecast an hour earlier. This also occurred on 15 February, where wind output averaged 38 MW for the 7 pm period, which was 64 MW less than that forecast an hour earlier. This meant that there was reduced low-priced capacity available than anticipated to meet demand.

On 16 February, AEMO had forecast very low wind output, however average wind output which was slightly higher than forecast at around 106 MW.

2.1.3 Interconnector constraints limited access to cheaper generation from Victoria

There are two interconnectors between South Australia and Victoria, Heywood and Murraylink. Heywood was flowing at close to its nominal limit (600 MW), so no further capacity could be imported from Victoria.

Murraylink’s flows were limited during the high prices on all 3 days (Table 2.2), to as low as 46 MW for a 30-minute average on 16 February. This is around 20% of Murraylink’s nominal capacity of 220 MW into South Australia, further restricting access to cheaper generation from Victoria. This was a result of system normal constraints that manage voltage control in Victoria.

Table 2.3 Actual and forecast flow and import limit into SA on Murraylink

Date	Time	Imports (MW)		Import limit (MW)	
		Actual	1 hr forecast	Actual	1 hr forecast
9 Feb	7 pm	118	200	118	200
15 Feb	7 pm	86	171	85	195
16 Feb	7.30 pm	38	126	38	187
16 Feb	8 pm	46	145	46	145

On 9 February, at 6.45 pm, constraints managing flows over Murraylink resulted in Victorian generators setting high prices in South Australia. These generators offered negative-priced capacity but were forced to reduce output to maintain system security.⁷

2.2 Rebidding contributed to high prices

Rebidding of capacity by participants contributed to the high price on 9 February and 15 February. However, rebidding did not significantly contribute to price outcomes on 16 February.

The rebidding tables below highlight the relevant rebids by generators that impacted market outcomes. It details the participant, station, capacity rebid, the change in the price of the capacity being offered, and the rebid reason.

On 9 February, there was 29 MW and 40 MW of high-priced capacity dispatched for the 6.55 pm and 7 pm intervals respectively (Table 2.4). Infigen Energy, EnergyAustralia and AGL Energy rebid a total of 65 MW of capacity from below \$1,502/MWh to above \$12,000/MWh due to increases in forecast prices and demand.

This short-term strategic rebidding to capitalise on market conditions had the effect of exacerbating high prices in South Australia.

AGL also withdrew 32 MW of capacity at Barker Inlet due to plant issues which was priced at \$0/MWh.

⁷ NEMDE solves for the cheapest solution across the NEM, which may sometimes result in high prices in one region where the generators setting price may not be located.

Table 2.4 Significant rebids for 9 February 6.55 pm and 7 pm

Participant	Station	Capacity rebid (MW)	Price from (\$/MWh)	Price to (\$/MWh)	Rebid reason
EnergyAustralia	Hallett	10 MW	\$1,501	\$15,500	Adj bands - SA 1625 dispatch \$811 vs P30 \$137 HHE 1630 et al - SL
Infigen Energy	Lake Bonney BESS1	25 MW	< \$996	\$12,936	Change in forecast prices.
AGL Energy	Torrens Island	30 MW	< \$350	\$15,500	A 050 Chg in AEMO PD~51 PD DEMAND_AND_NONSCHEDGEN increase [SA] avg 168MW PE 1800-1930 PD 1731
	Barker Inlet	32 MW	\$0	N/A	P 010 Unexpected/plant limits~106 Aux/Plant failure

On 15 February, there was 45 MW and 4 MW of high-priced capacity dispatched for the 6.40 pm and 6.45 pm intervals respectively (Table 2.5). Iberdrola Australia and EnergyAustralia removed 129 MW of low-priced capacity due to changed plant availability. In addition, AGL Energy rebid 40 MW of capacity from \$-1,000/MWh to \$15,500/MWh in a response to an increase in the forecast price.

Table 2.5 Significant rebids for 15 February 6.40 pm and 6.45 pm

Participant	Station	Capacity rebid (MW)	Price from (\$/MWh)	Price to (\$/MWh)	Rebid reason
Iberdrola Australia	Bolivar Power Station	108 MW	< \$464	N/A	Change in plant availability SL
EnergyAustralia	Hallett	21 MW	< \$1,501	N/A	Adj avail and bands due to ambient conditions SL
AGL Energy	Torrens Island	40 MW	\$-1,000	\$15,500	A 050 Chg in AEMO PD~56 Price increase [SA] avg \$667.83 5MPDPE 1755-1845 vs avg \$216.01 30MPD PE1800-1900

3 1 March 2023, Queensland

The wholesale price of electricity exceeded \$5,000/MWh for one 30-minute period on 1 March 2023 in Queensland, averaging \$5,229/MWh between 6 pm and 6.30 pm. The high price was not forecast.

Table 3.1 Breakdown of 30-minute high price event

Date	Time	Queensland 5-minute price (\$/MWh)
1 Mar	6.05 pm	279
	6.10 pm	349
	6.15 pm	15,003
	6.20 pm	370
	6.25 pm	371
	6.30 pm	15,000

The drivers of the high price were:

- high demand due to hot weather
- constraints on the interconnectors between NSW and Queensland limited access to cheaper generation from NSW
- wind generation was low and lower than forecast, so less low-priced capacity was available than anticipated
- rebidding of capacity from below \$555/MWh to above \$5,000/MWh
- technical limitations on certain generating units prevented capacity below \$5,000/MWh being dispatched in time.

Although demand was over 8,000 MW during the 30-minutes, only 1 MW of capacity priced above \$5,000/MWh was required at 6.15 pm and 28 MW at 6.30 pm. There was no capacity offered between \$1,298/MWh and \$15,500/MWh (the price cap), which meant small changes in demand or offers had a significant impact on price. This was known to the market at the time.

3.1 Overview of market conditions

In Queensland, prices exceeded \$5,000/MWh for one 30-minute period during the evening of 1 March 2023.

From Table 3.2 we observe that:

- the high price was not forecast 1 hour prior
- actual demand and availability were close to forecasts.

Table 3.2 Actual price, demand and availability compared to the 1 hour forecast

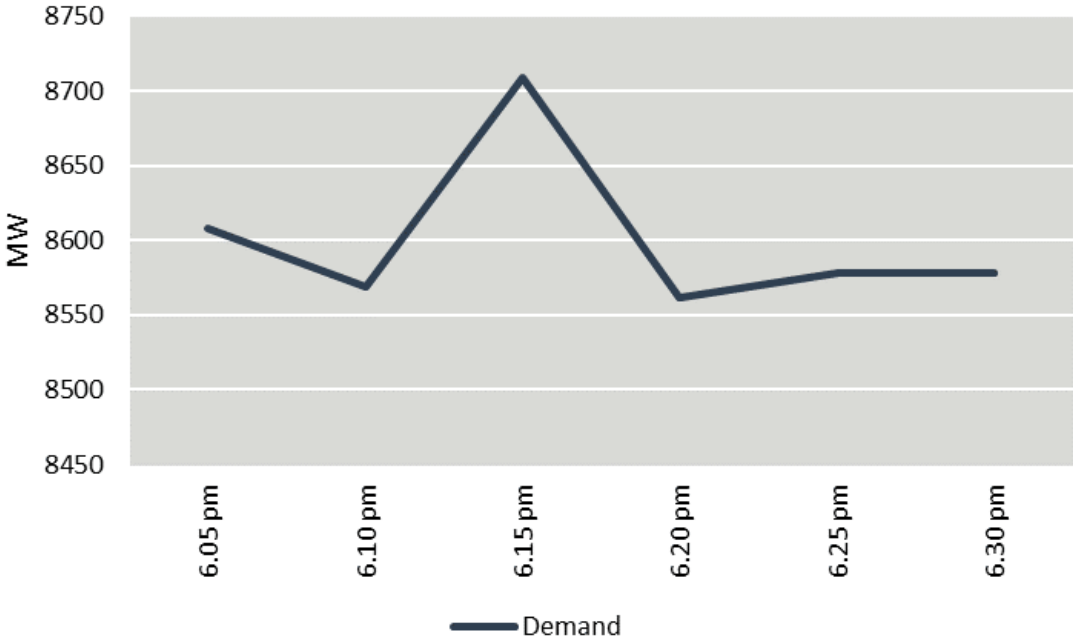
Date	Time	Price (\$/MWh)		Demand (MW)		Availability (MW)	
		Actual	1 hr forecast	Actual	1 hr forecast	Actual	1 hr forecast
1 Mar	6.30 pm	5,229	349	8,601	8,681	9,993	9,898

3.1.1 High temperatures drove high demand

Queensland had high temperatures at the time of the high price event. Brisbane temperatures were still 29°C during the evening, after peaking at 31°C earlier in the day. Conditions were made worse by humidity. The high temperatures drove high demand for electricity through the sustained use of air conditioners. At the same time, output from rooftop solar was falling which contributed to demand from the grid.

During the 6.15 pm dispatch interval, demand increased by 140 MW and more expensive generation was needed to meet this increase (Figure 3.1).

Figure 3.1 Demand in Queensland 1 March



3.1.2 Limited access to cheaper generation from NSW

At the time of the high price, the Queensland to NSW interconnector (QNI) was importing around 390 MW, which was around half its nominal capacity. This reduced limit was to avoid tripping lines around the Liddell power station.

Across Terranora, 56 MW was forced from Queensland into NSW to manage an outage of the Lismore static VAR compensator and maintain system security.⁸

As a result of these interconnector constraints, Queensland could not access enough cheaper generation from NSW to prevent the high price event.

3.1.3 Wind generation was lower than forecast

Wind output was low and lower than forecast, at the time of the high price. Therefore, there was less low-priced capacity available than anticipated and higher priced capacity was required to meet demand.

Wind generation averaged 33 MW during the high price period approximately 50 MW less than forecast 1 hour prior. Queensland has 831 MW of registered wind capacity, although Kaban wind farm is yet to reach full capacity.

3.1.4 Low priced capacity unable to be dispatched in time

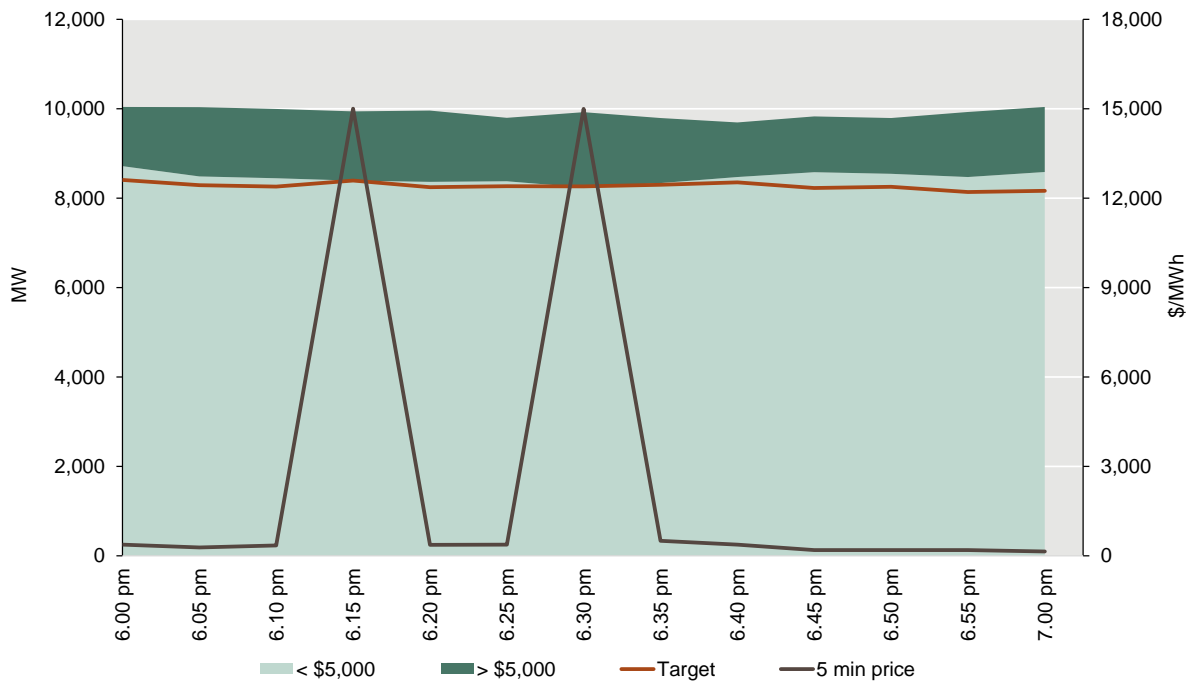
An increase in demand of 140 MW drove the need for increased generation, however some generators were unable to ramp up fast enough while other generators were not available because of the interaction between energy and Frequency Control Ancillary Services (FCAS) markets.⁹ For these reasons, 45 MW of available capacity offered below \$5,000/MWh was unable to be dispatched by 6.15 pm. As a result, 1 MW of capacity priced above \$5,000/MWh was required to be dispatched (Figure 3.2).

Similarly, at 6.30 pm a reduction in available low-priced capacity due to late rebids drove the need for increased low-priced generation. 37 MW of available capacity offered below \$5,000/MWh was unable to be dispatched due to technical limitations. This meant 28 MW of capacity priced above \$5,000/MWh was required (Figure 3.2).

⁸ A static VAR compensator (SVC) is a set of electrical devices for providing fast-acting reactive power on high-voltage electricity transmission networks.

⁹ The energy market currently interacts with 8 other markets that help maintain the frequency of the power system at 50 hertz.

Figure 3.2 Capacity offered above and below \$5,000/MWh



Source: AER analysis using NEM data

3.2 Rebidding contributed to the high price

Rebids contributed to the \$15,000/MWh prices at 6.15 pm and 6.30 pm (Table 3.3 and Table 3.4).

Genuity’s Millmerran power station rebid a total of 62 MW from the floor to the price cap, based on a change in price sensitivities. AGL’s Wandoan battery also rebid 65 MW of lower priced capacity to a high price, based on a later forecast high price. Both these rebids contributed to the high 5-minute price at 6.30 pm.

This short-term strategic rebidding to capitalise on market conditions had the effect of exacerbating high prices in Queensland.

In addition to the rebids discussed above, there were rebids for technical reasons. In particular at 5.58 pm CleanCo’s Wivenhoe station shifted all 285 MW of its available capacity from lower prices to the price cap to avoid being dispatched in a range that makes the unit unstable. Following this rebid, forecast price sensitivities increased for the 30-minute period ending at 6.30 pm.

Table 3.3 Rebids that contributed to the 6.15 pm 1 March high price

Submitted time	Participant	Station	Capacity rebid (MW)	Price from (\$/MWh)	Price to (\$/MWh)	Rebid reason
5.58 pm	CleanCo	Wivenhoe	285	551	15,500	Avoid partial targets in rough running band – SL

Table 3.4 Rebids that contributed to the 6.30 pm 1 March high price

Submitted time	Participant	Station	Capacity rebid (MW)	Price from (\$/MWh)	Price to (\$/MWh)	Rebid reason
5.58 pm	CleanCo	Wivenhoe	285	551	15,500	Avoid partial targets in rough running band – SL
6.05 pm	Genuity	Millmerran	32	-1,000	15,500	QLD1 RRP P5SENS Q+150 CHANGE +14949 (18:00 P5 DI 01/03/23 18:30 VALUE 15500 VS 17:55 P5 DI 01/03/23 18:30 VALUE 551) SL'
6.24 pm	Genuity	Millmerran	30	-1,000	15,500	QLD1 RRP P5SENS Q+150 CHANGE +14655 (18:20 P5 DI 01/03/23 18:30 VALUE 15004 VS 18:15 P5 DI 01/03/23 18:30 VALUE 349) SL
6.24 pm	AGL Energy	Wandoan BESS	65	279	15,000	050 Chg in AEMO PD~50 Change in forecast price 5MPD 349.01 vs 30MPD 1900 370.73

4 16 and 17 March 2023, Queensland and NSW

The wholesale price of electricity exceeded \$5,000/MWh for an hour between 6 pm and 7 pm on 16 March, and again between 5.30 pm and 6 pm on 17 March, in Queensland and NSW (Table 4.1).

Table 4.1 Summary of 30-minute high price events

Date	30 minutes ending	QLD Price (\$/MWh)	NSW Price (\$/MWh)
16 March	6.30 pm	10,995	9,805
16 March	7 pm	6,054	5,363
17 March	6 pm	7,070	5,986

These 30-minute prices were determined by the 5-minute dispatch intervals in each period (Table 4.2 and Table 4.3).

Table 4.2 5-minute prices on 16 March

Time	Queensland (\$/MWh)	NSW (\$/MWh)
6.05 pm	15,500	12,465
6.10 pm	15,500	14,218
6.15 pm	3,569	3,164
6.20 pm	15,500	14,120
6.25 pm	15,500	14,507
6.30 pm	399	358
6.35 pm	15,500	13,519
6.40 pm	355	308
6.45 pm	9,999	9,026
6.50 pm	9,797	8,738
6.55 pm	370	323
7 pm	304	265

Table 4.3 5-minute prices on 17 March

Time	Queensland (\$/MWh)	NSW (\$/MWh)
5.35 pm	371	313
5.40 pm	564	474
5.45 pm	14,500	12,274
5.50 pm	14,500	12,202
5.55 pm	371	310
6 pm	12,112	10,345

A combination of factors drove the high prices:

- Very hot weather resulting in very high demand.
- Network constraints in NSW impacted the interconnector between Victoria and NSW and limited access to cheaper generation from Victoria.
- There was around 3,300 MW of capacity unavailable due to generator outages, mostly planned.
- Participants removed some low-priced capacity due to technical issues which added to already tight market conditions. This resulted in the lack of spare capacity.
- In addition, some participants rebid capacity from low to high prices.

In the following analysis we treat Queensland and NSW as one region.¹⁰

4.1 Overview of market conditions

In Queensland and NSW, prices exceeded \$5,000/MWh for two 30-minute periods on 16 March and one 30-minute period on 17 March.

There was high demand on both days, and this coupled with generator outages saw tight supply demand conditions. On 16 March, actual demand was less than 1,000 MW lower than actual availability (Table 4.4). In response to this lack of spare capacity, AEMO published a forecast Lack Of Reserve (LOR)¹¹ notice to seek a market response. This triggered AEMO to contract for off-market help to reduce demand through the Reliability and Emergency Reserve Trader (RERT) process, but it was not activated.¹² AEMO declared an actual LOR 2

¹⁰ As the interconnector flows between Queensland and NSW were unconstrained during the high prices discussed in this report, the regions were price aligned and the same units set price across both regions. Therefore, our analysis considers them as one region and the same drivers drove the high prices in both regions.

¹¹ [AEMO LOR factsheet](#)

¹² <https://aemo.com.au/energy-systems/electricity/emergency-management/reliability-and-emergency-reserve-trader-rert>

condition from 5.30 pm in Queensland and 5.50 pm in NSW. Both were cancelled at 6.55 pm.

On 17 March conditions were not as tight and as a result only a LOR 1 eventuated in both regions.

Table 4.4 also shows:

- on 16 March, the high prices were not forecast 1 hour ahead but price forecasts at other times were fluctuating between \$317/MWh and the price cap, reflecting the tight supply demand conditions.
- on 17 March, the high prices were not forecast, and availability was 405 MW lower than the 1-hour forecast. A majority of the lower availability was due to lower than forecast wind availability.

Table 4.4 Actual price, demand and availability compared to the 1 hour forecast

Date Time	Qld price actual	Qld price 1 hr forecast	NSW price actual	NSW price 1 hr forecast	Combined demand actual	Combined demand 1 hr forecast	Combined availability actual	Combined availability 1 hr forecast
16 Mar 6.30 pm	10,995	663	9,805	827	21,038	21,139	21,907	22,065
16 Mar 7 pm	6,054	367	5,363	317	21,060	20,877	22,023	21,966
17 Mar 6 pm	7,070	552	5,986	129	19,965	20,182	22,172	22,577

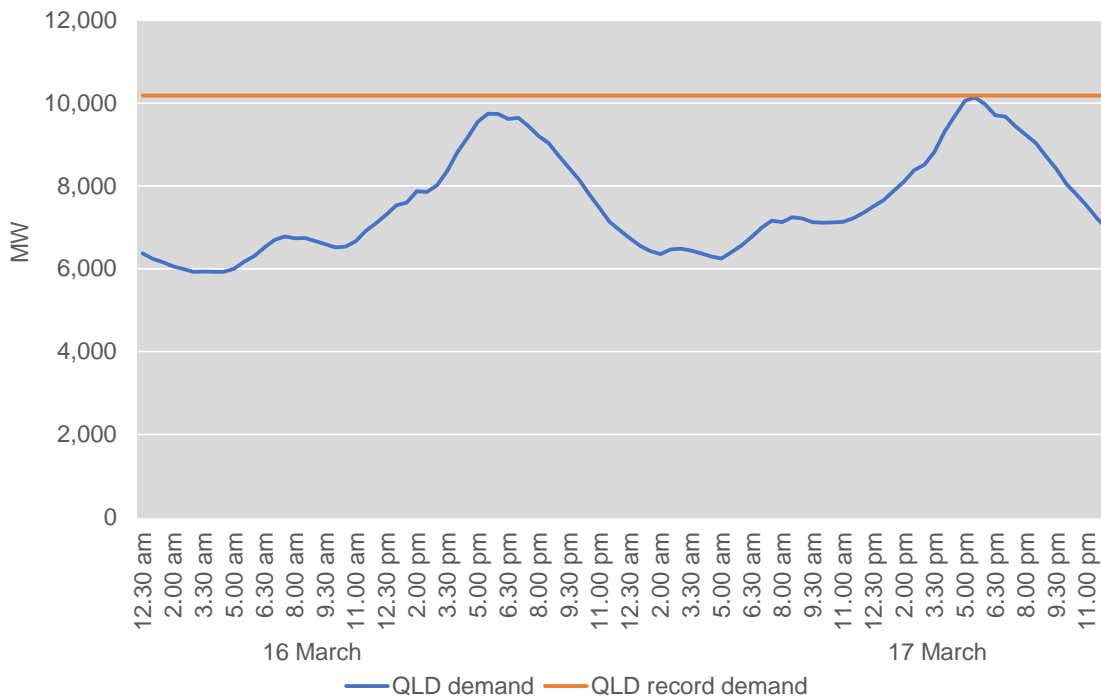
4.1.1 High temperatures drove high demand

On 16 and 17 March, temperatures in Brisbane reached 35 and 37 degrees respectively, while in Sydney they reached 36 and 32 degrees. This drove very high demand with close to record levels on both days in Queensland (Figure 4.1).¹³ The average combined demand for Queensland and NSW exceeded 21,000 MW between 6 pm to 7 pm on 16 March (the highest demand between 6 pm to 7 pm over the quarter). Average combined demand over the 30 minutes to 6 pm on 17 March was slightly lower but still very high.

There was up to 21 MW of wholesale demand response by participants in NSW and 2 MW in Queensland, but it was not enough to stop high-priced capacity from being dispatched on this occasion.

¹³ AEMO reported Queensland reached an all-time maximum operational demand record at 5.30 pm on 17 March (the period leading up to the high price).

Figure 4.1 Queensland demand close to record



Source: AER analysis using NEM data.

Note: Chart uses native demand.

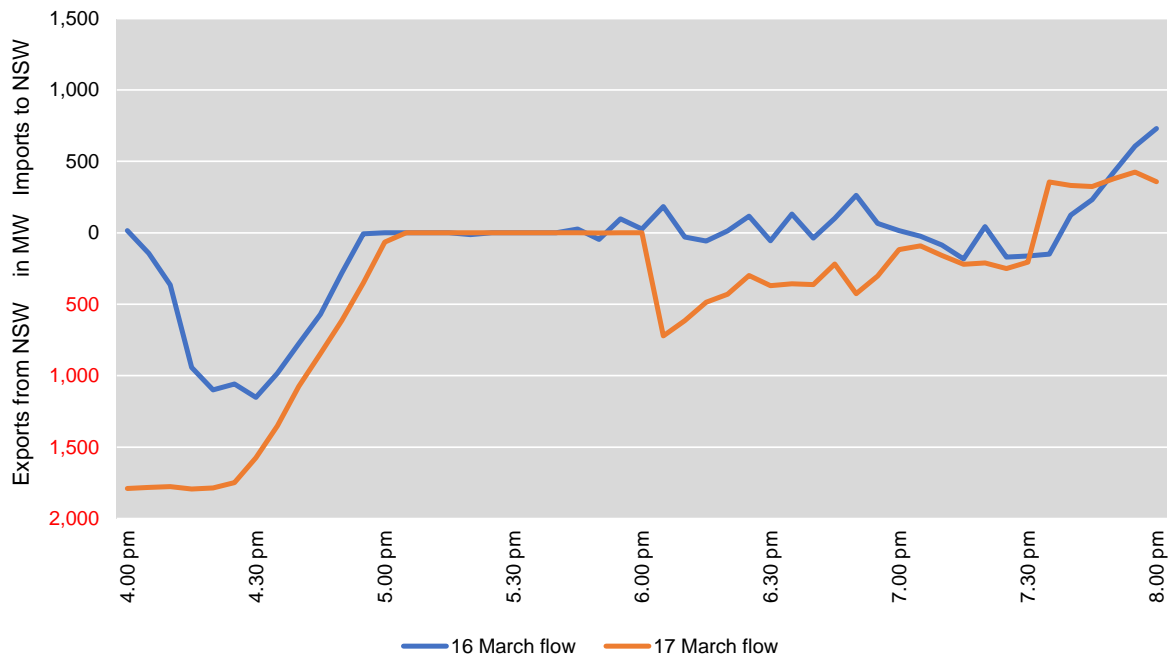
4.1.2 Interconnector constraints limited access to cheaper generation from Victoria

On both days the Victoria to NSW interconnector had its flows into NSW limited and at times forced into Victoria but for different reasons. Its usual unconstrained limit is around 1,200 MW. This reduced NSW and Queensland’s access to cheaper Victorian generation.

On 16 March, a constraint to avoid overloading the Cowra to Forbes line in NSW limited imports from Victoria to as low as 14 MW. For one high-priced period flows were forced into Victoria at 29 MW (Figure 4.2).

On 17 March, a constraint managing a planned network outage between Upper Tumut to Ravine in NSW limited imports from Victoria across the VIC-NSW interconnector and at times forced flow into Victoria to maintain system security. When the cost of forced flows exceeds a certain threshold AEMO invokes another constraint that limits the cost by reducing forced flows. From around 4.30 pm this threshold was breached and AEMO gradually reduced forced flows to 0 MW. Flows across Vic-NSW were set to 0 MW for most of the high-priced intervals (Figure 4.2).

Figure 4.2 Victoria-NSW interconnector target flows



Source: AER analysis using NEM data.
 Note: Flow uses interconnector target in MW.

4.1.3 Less low-priced capacity was available due to outages and technical issues

3,300 MW of capacity was unavailable, largely due to ongoing black coal generator outages on 16 March (Table 4.5). These units typically offer most of their capacity at low prices. The following day, a Gladstone unit was taken offline due to a planned outage which further reduced the amount of available low-priced capacity.

Table 4.5 Key ongoing baseload outages in Queensland and NSW, 16 and 17 March

Date	Participant	Station	Registered capacity (MW)
16 Mar	AGL	Bayswater unit 3	660
	EnergyAustralia	Mt Piper unit 1	700
	Delta Electricity	Vales Point unit 5	660
	CS Energy	Callide C unit 3	420
	CS Energy	Callide C unit 4	420
	Stanwell	Tarong North unit 1	440
16 Mar total			3,300
17 Mar	CS Energy	Gladstone unit 4	280
17 Mar total			3,580

4.2 Rebidding contributed to the high prices

Rebidding contributed to the high prices on 16 and 17 March and those rebids are listed in the attachment. Some of these were for technical reasons while others were for financial reasons.

16 March rebids for 6.30 pm and 7 pm

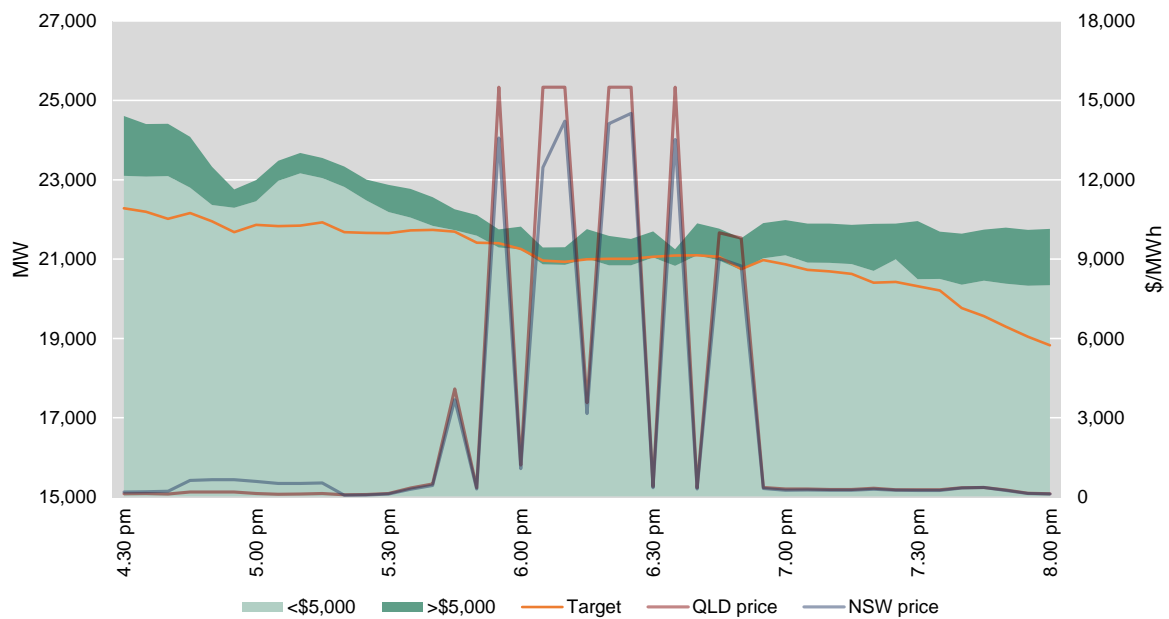
Even though most capacity was offered below \$5,000/MWh, during the high prices on 16 March, between 26 MW to 260 MW of capacity priced at the cap was needed to meet demand and set the price (Figure 4.3).

Late in the afternoon participants withdrew low-priced capacity to manage plant issues. Around 800 MW of capacity became unavailable from 3.17 pm due to various technical issues with around 600 MW of that priced below \$5,000/MWh.

Over three rebids between 5.52 pm and 5.56 pm CleanCo withdrew around 325 MW of capacity at Wivenhoe due to technical reasons and a unit failing to start. 200 MW of this capacity was priced at \$12,112/MWh while the rest was priced below \$194/MWh.

At 6.35 pm, effective at 6.45 pm, AGL rebid 91 MW of capacity at the Wandoan battery from the price floor to around \$10,000/MWh and set the price. The reason given related to its low state of charge. The rebid shifted 27 MW of capacity from the price floor to around \$10,000/MWh for 6.50 pm when just 26 MW of high-priced capacity was needed.

Figure 4.3 Effective availability, target and price in Queensland and NSW, 16 March



Source: AER analysis using NEM data.

Note: Capacity available below \$5,000/MWh refers to effective capacity.

17 March rebids for 6 pm

Even though most capacity was offered below \$5,000/MWh, between 8 MW to 80 MW of capacity priced at the cap was needed to meet demand and set the price (Figure 4.4).

Over several rebids from 2.46 pm AGL reduced 105 MW of low-priced capacity at Bayswater, in NSW, due to milling limits.

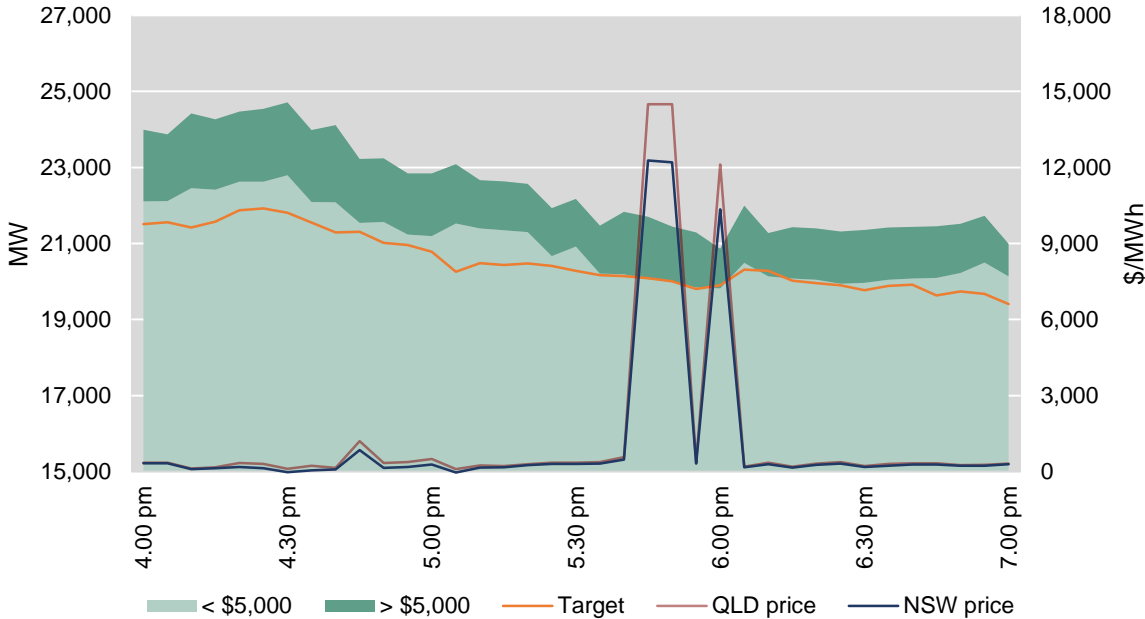
Several participants rebid capacity from low to high prices including AGL, Origin and Snowy Hydro. The most significant was AGL.

At 4.44 pm, AGL rebid 65 MW of capacity at the Wandoan battery, in Queensland, from low prices to around \$15,000/MWh, in response to a change in the forecast price.

At 5.51 pm, effective from 6 pm, AGL rebid 100 MW of capacity at Bayswater from the price floor to the price cap, in response to a change in the forecast price.

This short-term strategic rebidding to capitalise on market conditions had the effect of exacerbating high prices. Again, while this behaviour may not be a breach of the rules, the ability of these participants to increase price through these rebidding strategies highlights the market power that participants may be able to exercise at certain times.

Figure 4.4 Effective availability, target and price in Queensland and NSW, 17 March



Source: AER analysis using NEM data.

Note: Capacity available below \$5,000/MWh refers to effective capacity.

4.3 Attachment – Significant rebids

Below are tables with significant rebids for 16 and 17 March. Only the 5-minute periods with a high price are included. Because as little as 8 MW of high-priced capacity was needed there were a lot of significant rebids compared to other days in this report.

16 March

6.05 pm

Submitted time	Time effective	Participant	Station	Capacity rebid (MW)	Price from (\$/MWh)	Price to (\$/MWh)	Rebid reason
3.17 pm		CS Energy	Callide B	-30	370	N/A	Condenser -Vacuum Load-SL
3.36 pm		InterGen	Millmerran	-140	-1,000	N/A	Fuel/Mill/CV Limitation
3.42 pm		CS Energy	Callide B	-5	30	N/A	Condenser -Vacuum Load-SL
4.09 pm		InterGen	Millmerran	80	N/A	-1,000	QLD RRP CHANGE +10656 (16:05 P5 DI 16/03/23 16:55 VALUE 10722 VS 16:00 PD TI 16/03/23 17:00 VALUE 66)
4.28 pm		CS Energy	Kogan Ck	-230	19	N/A	Ashing System-SCC-
4.33 pm		InterGen	Millmerran	-15	-1,000	N/A	Fan(s) Limitation
5.30 pm	5.40 pm	InterGen	Millmerran	5	N/A	-1,000	Fan(s) Limitation
5.44 pm	5.50 pm	InterGen	Millmerran	20	N/A	-1,000	Fan(s) Limitation
5.45 pm	5.55 pm	CS Energy	Gladstone	-140	<371	N/A	Condenser -Backflush-
5.52 pm	6 pm	InterGen	Millmerran	5	N/A	-1,000	Fan(s) Limitation
5.52 pm	6 pm	CleanCo	Wivenhoe	-85	<194	N/A	WPS2 RTS-limited due to water injection issue
5.56 pm	6.05 pm	CleanCo	Wivenhoe	-200	12,112	N/A	unit trip on start up
5.57 pm	6.05 pm	CleanCo	Wivenhoe	-40	<194	N/A	Stator temperature limitation
5.59 pm	6.05 pm	InterGen	Millmerran	-20	-1,000	N/A	Mill or feeder limitation

6.10 pm

Submitted time	Time effective	Participant	Station	Capacity rebid (MW)	Price from (\$/MWh)	Price to (\$/MWh)	Rebid reason
3.17 pm		CS Energy	Callide B	-30	370	N/A	Condenser -Vacuum Load-SL
3.36 pm		InterGen	Millmerran	-140	-1,000	N/A	Fuel/Mill/CV Limitation
3.42 pm		CS Energy	Callide B	-5	30	N/A	Condenser -Vacuum Load-SL
3.42 pm		CS Energy	Callide B	-5	30	N/A	Condenser -Vacuum Load-SL
4.09 pm		InterGen	Millmerran	80	N/A	-1,000	QLD1 RRP CHANGE +10656 (16:05 P5 DI 16/03/23 16:55 VALUE 10722 VS 16:00 PD TI 16/03/23 17:00 VALUE 66)
4.28 pm		CS Energy	Kogan Ck	-230	19	N/A	Ashing System-SCC-SL
4.33 pm		InterGen	Millmerran	-15	-1,000	N/A	Fan(s) Limitation
5.30 pm		InterGen	Millmerran	5	N/A	-1,000	Fan(s) Limitation
5.44 pm	5.50 pm	InterGen	Millmerran	20	N/A	-1,000	Fan(s) Limitation
5.45 pm	5.55 pm	CS Energy	Gladstone	-140	<371	N/A	Condenser -Backflush-
5.52 pm	6 pm	InterGen	Millmerran	5	N/A	-1,000	Fan(s) Limitation

Submitted time	Time effective	Participant	Station	Capacity rebid (MW)	Price from (\$/MWh)	Price to (\$/MWh)	Rebid reason
5.52 pm	6 pm	CleanCo	Wivenhoe	-85	<194	N/A	WPS2 RTS - limited due to water injection issue
5.56 pm	6.05 pm	CleanCo	Wivenhoe	-200	12,112	N/A	unit trip on start up
5.57 pm	6.05 pm	CleanCo	Wivenhoe	-40	<194	N/A	Stator temperature limitation
6.00 pm	6.10 pm	CS Energy	Gladstone	-10	64	N/A	Emissions -Fabric filter-SL

6.20 pm

Submitted time	Time effective	Participant	Station	Capacity rebid (MW)	Price from (\$/MWh)	Price to (\$/MWh)	Rebid reason
3.17 pm		CS Energy	Callide B	-30	370	N/A	Condenser -Vacuum Load-SL
3.36 pm		InterGen	Millmerran	-140	-1,000	N/A	Fuel/Mill/CV Limitation
4.09 pm		InterGen	Millmerran	80	N/A	-1,000	QLD1 RRP CHANGE +10656 (16:05 P5 DI 16/03/23 16:55 VALUE 10722 VS 16:00 PD TI 16/03/23 17:00 VALUE 66) SL
4.28 pm		CS Energy	Kogan Ck	-230	19	N/A	Ashing System-SCC-SL
4.33 pm		InterGen	Millmerran	-15	-1,000	N/A	Fan(s) Limitation
5.30 pm		InterGen	Millmerran	5	N/A	-1,000	Fan(s) Limitation
5.44 pm		InterGen	Millmerran	20	N/A	-1,000	Fan(s) Limitation
5.45 pm	5.55 pm	CS Energy	Gladstone	-140	<371	N/A	Condenser -Backflush
5.52 pm	6 pm	InterGen	Millmerran	5	N/A	-1,000	Fan(s) Limitation
5.52 pm	6 pm	CleanCo	Wivenhoe	-85	<194	N/A	WPS2 RTS - limited due to water injection issue
5.56 pm	6.05 pm	CleanCo	Wivenhoe	-200	12,112	N/A	unit trip on start up
5.57 pm	6.05 pm	CleanCo	Wivenhoe	-40	<194	N/A	Stator temperature limitation
6.00 pm	6.10 pm	CS Energy	Gladstone	-10	64	N/A	Emissions -Fabric filter-SL
6.09 pm	6.15 pm	CS Energy	Gladstone	-10	371	N/A	Emissions -Fabric filter-SL
6.09 pm	6.15 pm	CleanCo	Wivenhoe	8	N/A	<194	manage Stator temperature limitation

6.25 pm

Submitted time	Time effective	Participant	Station	Capacity rebid (MW)	Price from (\$/MWh)	Price to (\$/MWh)	Rebid reason
3.17 pm		CS Energy	Callide B	-30	370	N/A	Condenser -Vacuum Load-SL
3.36 pm		InterGen	Millmerran	-140	-1,000	N/A	Fuel/Mill/CV Limitation
4.09 pm		InterGen	Millmerran	80	N/A	-1,000	QLD1 RRP change +10656 (16:05 P5 DI 16/03/23 16:55 value 10722 VS 16:00 PD TI 16/03/23 17:00 VALUE 66) SL
4.28 pm		CS Energy	Kogan Ck	-230	19	N/A	Ashing System-SCC-SL
4.33 pm		InterGen	Millmerran	-15	-1,000	N/A	Fan(s) Limitation
5.30 pm		InterGen	Millmerran	5	N/A	-1,000	Fan(s) Limitation
5.44 pm		InterGen	Millmerran	20	N/A	-1,000	Fan(s) Limitation
5.45 pm		CS Energy	Gladstone	-140	<371	N/A	Condenser -Backflush-SL
5.52 pm	6 pm	InterGen	Millmerran	5	N/A	-1,000	Fan(s) Limitation

Submitted time	Time effective	Participant	Station	Capacity rebid (MW)	Price from (\$/MWh)	Price to (\$/MWh)	Rebid reason
5.52 pm	6 pm	CleanCo	Wivenhoe	-85	<194	N/A	WPS2 RTS - limited due to water injection issue
5.56 pm	6.05 pm	CleanCo	Wivenhoe	-200	12,112	N/A	unit trip on start up
5.57 pm	6.05 pm	CleanCo	Wivenhoe	-40	<194	N/A	Stator temperature limitation
6.00 pm	6.10 pm	CS Energy	Gladstone	-10	64	N/A	Emissions -Fabric filter-SL
6.09 pm	6.15 pm	CS Energy	Gladstone	-10	371	N/A	Emissions -Fabric filter-SL
6.09 pm	6.15 pm	CleanCo	Wivenhoe	8	N/A	<194	manage Stator temperature limitation
6.16 pm	6.25 pm	Snowy Hydro	Tumut	-50	-1,000	N/A	17:51:00 A CG1 5MIN PD DUID Dispatch 125 higher than 5MIN PD 18:15@17:46 (125) - SL

6.35 pm

Submitted time	Time effective	Participant	Station	Capacity rebid (MW)	Price from (\$/MWh)	Price to (\$/MWh)	Rebid reason
3.17 pm		CS Energy	Callide B	-30	370	N/A	Condenser -Vacuum Load-SL
3.36 pm		InterGen	Millmerran	-140	-1,000	N/A	Fuel/Mill/CV Limitation
4.09 pm		InterGen	Millmerran	80	N/A	-1,000	QLD1 RRP CHANGE +10656 (16:05 P5 DI 16/03/23 16:55 VALUE 10722 VS 16:00 PD TI 16/03/23 17:00 VALUE 66) SL
4.28 pm		CS Energy	Kogan Ck	-230	19	N/A	Ashing System-SCC-SL
4.33 pm		InterGen	Millmerran	-10	-1,000	N/A	Fan(s) Limitation
5.44 pm		InterGen	Millmerran	20	N/A	-1,000	Fan(s) Limitation
5.45 pm		CS Energy	Gladstone	-140	<371	N/A	Condenser -Backflush-SL
5.52 pm		InterGen	Millmerran	5	N/A	-1,000	Fan(s) Limitation
5.52 pm		CleanCo	Wivenhoe	-85	<194	N/A	WPS2 RTS - limited due to water injection issue
6.00 pm	6.10 pm	CS Energy	Gladstone	-10	64	N/A	Emissions -Fabric filter-SL
6.09 pm	6.15 pm	CS Energy	Gladstone	-10	371	N/A	Emissions -Fabric filter-SL
6.16 pm	6.25 pm	Snowy Hydro	Tumut	-50	-1,000	N/A	17:51:00 A CG1 5MIN PD DUID Dispatch 125 higher than 5MIN PD 18:15@17:46 (125) - SL
6.23 pm	6.30 pm	CleanCo	Wivenhoe	-32	194	N/A	Temperature limitation – SL
6.28 pm	6.35 pm	Snowy Hydro	Tumut	50	15,500	-1,000	18:26:00 A NSW 5MIN PD Price \$303.33 higher than 30MIN PD 19:05@18:03 (\$661.74) - SL
6.29 pm	6.35 pm	Snowy Hydro	Colongra	125	-1,000	15,500	17:03:00 A NSW 30MIN PD Price \$130.86 LOWER THAN 30MIN PD 19:30@16:33 (\$372.23) - SL

6.45 pm

Submitted time	Time effective	Participant	Station	Capacity rebid (MW)	Price from (\$/MWh)	Price to (\$/MWh)	Rebid reason
3.17 pm		CS Energy	Callide B	-30	370	N/A	Condenser -Vacuum Load-SL

3.36 pm		InterGen	Millmerran	-140	-1,000	N/A	Fuel/Mill/CV Limitation
4.09 pm		InterGen	Millmerran	80	N/A	-1,000	QLD1 RRP change +10656 (16:05 P5 DI 16/03/23 16:55 value 10722 VS 16:00 PD TI 16/03/23 17:00 value 66) SL
4.28 pm		CS Energy	Kogan Creek	-230	19	N/A	Ashing System-SCC-SL
5.44 pm		InterGen	Millmerran	15	N/A	-1,000	Fan(s) Limitation
5.45 pm		CS Energy	Gladstone	-140	<371	N/A	Condenser -Backflush-SL
5.52 pm		CleanCo	Wivenhoe	-85	<194	N/A	WPS2 RTS - limited due to water injection issue
6.00 pm		CS Energy	Gladstone	-10	64	N/A	Emissions -Fabric filter-SL
6.09 pm		CS Energy	Gladstone	-10	371	N/A	Emissions -Fabric filter-SL
6.23 pm	6.30 pm	CleanCo	Wivenhoe	-32	194	N/A	Temperature limitation - SL
6.28 pm	6.35 pm	Snowy Hydro	Tumut	50	15,500	-1,000	18:26:00 A NSW 5MIN PD Price \$303.33 higher than 30MIN PD 19:05@18:03 (\$661.74) - SL
6.29 pm	6.35 pm	Snowy Hydro	Colongra	125	-1,000	15,500	17:03:00 A NSW 30MIN PD Price \$130.86 30MIN PD 19:30@16:33 (\$372.23) - SL
6.33 pm	6.40 pm	Snowy Hydro	Tumut	50	N/A	-1,000	18:33:00 P update capability parameters for change to outage plan/plant conditions - SL
6.33 pm	6.40 pm	CleanCo	Wivenhoe	-11	<194	N/A	Temperature limitation - SL
6.35 pm	6.45 pm	AGL Energy	Wandoan BESS	91	-1,000	9,999	010 Unexpected/plant limits-101 SOC Low

6.50 pm

Submitted time	Time effective	Participant	Station	Capacity rebid (MW)	Price from (\$/MWh)	Price to (\$/MWh)	Rebid reason
3.17 pm		CS Energy	Callide B	-30	370	N/A	Condenser -Vacuum Load-SL
3.36 pm		InterGen	Millmerran	-140	-1,000	N/A	Fuel/Mill/CV Limitation
4.09 pm		InterGen	Millmerran	80	N/A	-1,000	QLD1 RRP CHANGE +10656 (16:05 P5 DI 16/03/23 16:55 VALUE 10722 VS 16:00 PD TI 16/03/23 17:00 VALUE 66) SL
4.28 pm		CS Energy	Kogan Creek	-230	19	N/A	Ashing System-SCC-SL
5.44 pm		InterGen	Millmerran	15	N/A	-1,000	Fan(s) Limitation
5.45 pm		CS Energy	Gladstone	-140	<371	N/A	Condenser -Backflush-SL
6 pm		CS Energy	Gladstone	-10	64	N/A	Emissions -Fabric filter-SL
6.09 pm		CS Energy	Gladstone	-10	371	N/A	Emissions -Fabric filter-SL
6.28 pm	6.35 pm	Snowy Hydro	Tumut	50	15,500	-1,000	18:26:00 A NSW 5MIN PD Price \$303.33 HIGHER THAN 30MIN PD 19:05@18:03 (\$661.74) - SL
6.29 pm		Snowy Hydro	Colongra	125	-1,000	15,500	17:03:00 A NSW 30MIN PD Price \$130.86 LOWER THAN 30MIN

Submitted time	Time effective	Participant	Station	Capacity rebid (MW)	Price from (\$/MWh)	Price to (\$/MWh)	Rebid reason
6.33 pm		Snowy Hydro	Tumut	50	N/A	-1,000	PD 19:30@16:33 (\$372.23) - SL 18:33:00 P UPDATE CAPABILITY PARAMETERS FOR CHANGE TO OUTAGE PLAN/PLANT CONDITIONS - SL
6.35 pm		AGL Energy	Wandoan BESS	27	-1,000	9,999	P 010 Unexpected/plant limits~101 SOC Low
6.33 pm		AGL Energy	Wandoan BESS	15	N/A	9,999	Capability Change (PD) ENERGY, RAISE5MIN, RAISE60SEC, RAISE6SEC, RAISEREG
6.38 pm		AGL Energy	Wandoan BESS	-11	9,999	N/A	Capability Change (PD) ENERGY, RAISE5MIN, RAISE60SEC, RAISE6SEC, RAISEREG
6.43 pm		AGL Energy	Wandoan BESS	60	N/A	9,999	P Capability Change ENERGY, RAISE5MIN

17 March

5.45 pm

Submitted time	Time effective	Participant	Station	Capacity rebid (MW)	Price from (\$/MWh)	Price to (\$/MWh)	Rebid reason
2.46 pm		AGL Energy	Bayswater	-65	-1,000	N/A	010 Unexpected/plant limits~101 Milling Limits
2.56 pm		AGL Energy	Bayswater	-60	-1,000	N/A	010 Unexpected/plant limits~101 Milling Limits
3.00 pm		Origin Energy	Eraring	-30	-1,000	N/A	Change in avail - ID fan limitations SL
3.14 pm		Origin Energy	Shoalhaven	40	-1,000	15,500	Pond level management revised SL
4.31 pm		AGL Energy	Bayswater	20	N/A	-1,000	030 Increase in avail cap~301 plant limit lifted
4.39 pm		EnergyAustralia	Mt Piper	-50	-1000	N/A	adj avail revised mill limit SL
4.44 pm		AGL Energy	Wandoan BESS	65	500	14,999	050 Chg in AEMO PD~54 PD price change [QLD] \$1201.01 vs \$62.87 PE 1700
5.11 pm	5.20 pm	EnergyAustralia	Mt Piper	10	N/A	-1,000	adj avail match actual SL
5.14 pm	5.20 pm	EnergyAustralia	Mt Piper	20	N/A	-1,000	adj avail match ambientSL
3.40 pm – 5.45 pm		<i>Snowy Hydro</i>	<i>Colongra</i>	-32	VAR	N/A	<i>Net rebids due to changes in ambient temperature [summarised]</i>

5.50 pm

Submitted time	Time effective	Participant	Station	Capacity rebid (MW)	Price from (\$/MWh)	Price to (\$/MWh)	Rebid reason
2.46 pm		AGL Energy	Bayswater	-65	-1,000	N/A	010 Unexpected/plant limits~101 Milling Limits
2.56 pm		AGL Energy	Bayswater	-60	-1,000	N/A	010 Unexpected/plant limits~101 Milling Limits
3.00 pm		Origin Energy	Eraring	-30	-1,000	N/A	Change in avail - ID fan limitations SL
3.14 pm		Origin Energy	Shoalhaven	40	-1,000	15,500	Pond level management revised SL
4.31 pm		AGL Energy	Bayswater	20	N/A	-1,000	030 Increase in avail cap~301 plant limit lifted
4.44 pm		AGL Energy	Wandoan BESS	65	500	14,999	050 Chg in AEMO PD~54 PD price change [QLD] \$1201.01 vs \$62.87 PE 1700
5.28 pm	5.35 pm	Alinta Energy	Braemar A	-5	355	N/A	Revise unit output based on ambient conditions SL
5.38 pm	5.45 pm	Alinta Energy	Braemar A	-13	355	N/A	revised unit availability due to ambient conditions.
3.40 pm – 5.45 pm		Snowy Hydro	Colongra	-32	VAR	N/A	Net rebids for capacity due to changes in ambient temperature [summarised by AER]

6 pm

Submitted time	Time effective	Participant	Station	Capacity rebid (MW)	Price from (\$/MWh)	Price to (\$/MWh)	Rebid reason
2.46 pm		AGL Energy	Bayswater	-65	-1,000	N/A	010 Unexpected/plant limits~101 Milling Limits
2.56 pm		AGL Energy	Bayswater	-60	-1,000	N/A	010 Unexpected/plant limits~101 Milling Limits
3.00 pm		Origin Energy	Eraring	-30	-1,000	N/A	Change in avail - ID fan limitations SL
3.14 pm		Origin Energy	Shoalhaven	40	-1,000	15,500	Pond level management revised SL
4.31 pm		AGL Energy	Bayswater	20	N/A	-1,000	030 Increase in avail cap~301 plant limit lifted
4.44 pm		AGL Energy	Wandoan BESS	65	500	14,999	050 Chg in AEMO PD~54 PD price change [QLD] \$1201.01 vs \$62.87 PE 1700
5.51 pm	6 pm	AGL Energy	Bayswater	100	-1,000	15,500	040 Chg in AEMO DISP~45 Price change vs PD NSW \$12202.20 DISP vs \$128.04 30MPD PE 18:00
3.40 pm – 5.45 pm		Snowy Hydro	Colongra	-29	VAR	N/A	Net rebids due to changes in ambient temperature [summarised by AER]