Electricity prices above $5,000 per MWh

April to June 2024

July 2024

AUSTRALIAN ENERGY REGULATOR

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AER reference: AER #24,009,128

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1 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 energy price exceeds $5,000 per megawatt hour (MWh); or 2 consecutive 30-minute Frequency Control Ancillary Service (FCAS) prices exceed $5,000 per MW.[2]

30-minute prices do not often reach $5,000 per MWh, but with a market price cap over $16,600 per MWh prices can occasionally exceed this reporting threshold.[3] This reporting framework is intended to pick up these outlier events.

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

The AER also analyses trends in prices and other market events through our quarterly wholesale markets report, available from www.aer.gov.au/wholesale-markets/performance-reporting.

[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.

[3] The market price cap in 2023/24 is $16,600 per MWh. This increased to $17,500 per MWh on 1 July 2024.

2 Summary

The wholesale 30-minute price of electricity exceeded $5,000 per MWh 19 times in April to June 2024, compared to 16 in the same period last year. Almost all of these occurred in NSW in May (Table 2.1) and 15 of them occurred on just 2 days, 7 and 8 May. There were also 15 high frequency control ancillary service (FCAS) prices in Queensland on 7 and 8 May.

The number of high prices on 8 May was a significant event. It led to the cumulative price exceeding the cumulative price threshold in energy for only the second time in the history of the NEM. This triggered a period of administered prices in NSW, where wholesale electricity prices and FCAS prices were capped at $600 per MWh until the cumulative price fell back below the threshold 7 days later.

The common driver of almost all high prices was multiple scheduled network outages which impacted NSW's ability to access low-priced generation from southern NSW and from neighbouring regions. This was compounded by significant baseload generation outages and plant issues (mostly unplanned), in particular at Eraring and Vales Point power stations.

These factors created the opportunity for some market participants to profit maximise. While this is permissible under the National Electricity Rules, the behaviour may not have been in the best interests of energy consumers. Participants were able to put upward pressure on prices by reducing the amount of low-priced capacity offered. They did this by offering a larger share of their capacity at high prices and by rebidding capacity from low to high prices. AGL Energy and EnergyAustralia demonstrated this behaviour most significantly at their Bayswater and Mt Piper power stations. Further analysis of participant behaviour and its effect on the efficient functioning of the market will be undertaken in the Wholesale Electricity Market Performance Report 2024.

Table 2.1: Number and common drivers of high prices

Date and region	Number of prices	High demand	Reduced supply	Network limitations	Technical rebids	Commercial rebids
2 May, NSW	1	×	✓	✓	✓	✓
3 May, NSW	1	×	✓	✓	×	✓
7 May, NSW	3	×	✓	✓	✓	✓
8 May, NSW	12	×	✓	✓	✓	✓
20 May, NSW	1	×	✓	✓	×	✓
7 May (FCAS), Qld	3	-	×	✓	×	×
8 May (FCAS), Qld	12	-	×	✓	✓	✓
25 June, Tas	1	×	×	✓	×	×

In this report:

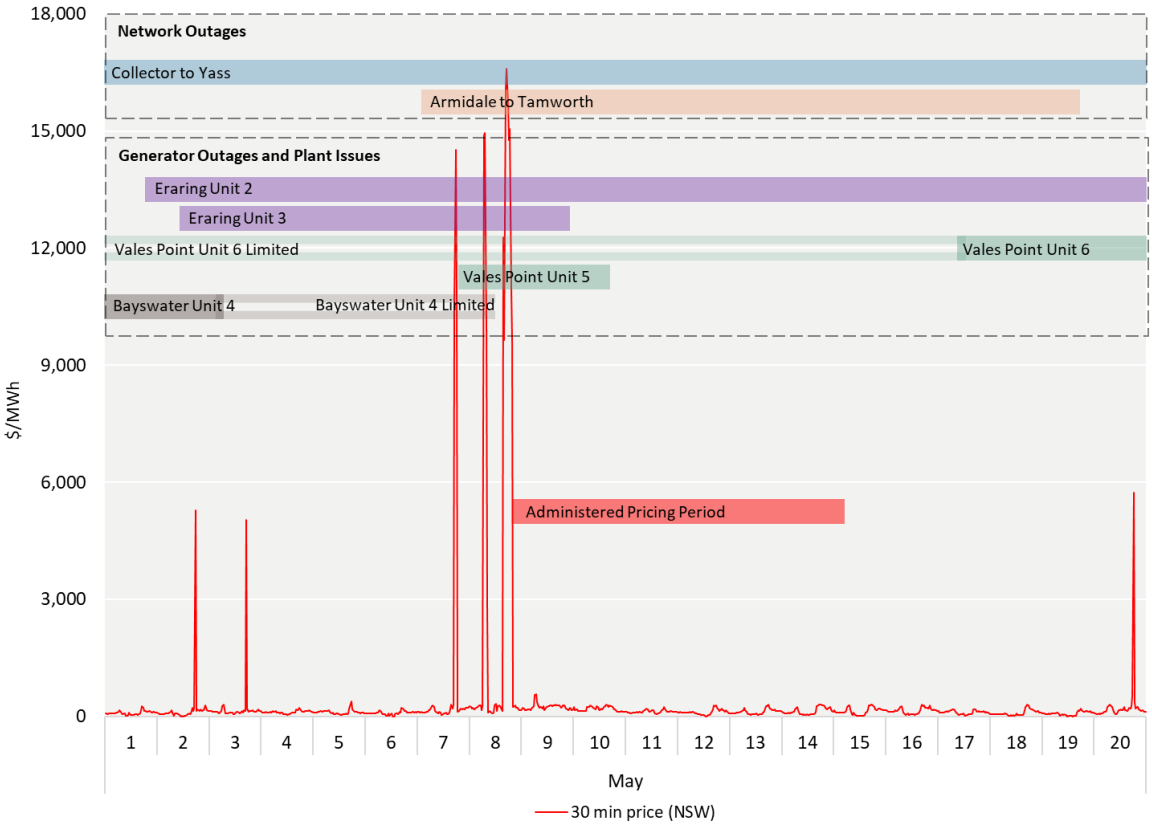
- chapters 3 to 8 investigate the common issues across the high price days in May
- chapter 9 includes further analysis not earlier covered of the high price days in May
- chapter 10 examines the high FCAS prices in Queensland on 7 and 8 May
- chapter 11 examines high prices in Tasmania on 25 June.

3 Planned network outages in NSW

Multiple planned network outages impacted NSW's ability to access low-priced generation from neighbouring regions and southern NSW (Figure 3.1). These outages were on the Collector to Yass line to the south and the Armidale to Tamworth line to the north. They were significant as, on average, NSW needs to import energy to meet demand. The major coal power stations were not impacted by these constraints.

The AER administers the service target performance incentive scheme (STPIS) to provide incentives to transmission network service providers to improve or maintain a high level of service or be penalised if it falls below a benchmark. This is done to benefit consumers and participants.[4]

Figure 3.1 High prices driven by network and generator outages in NSW



Source: AER analysis using NEM data.
Note: Using 30-minute price in NSW to demonstrate the relationship between network outages, generator outages, plant limitations and the administered pricing period.

[4] More information on STPIS can be found on the AER website.

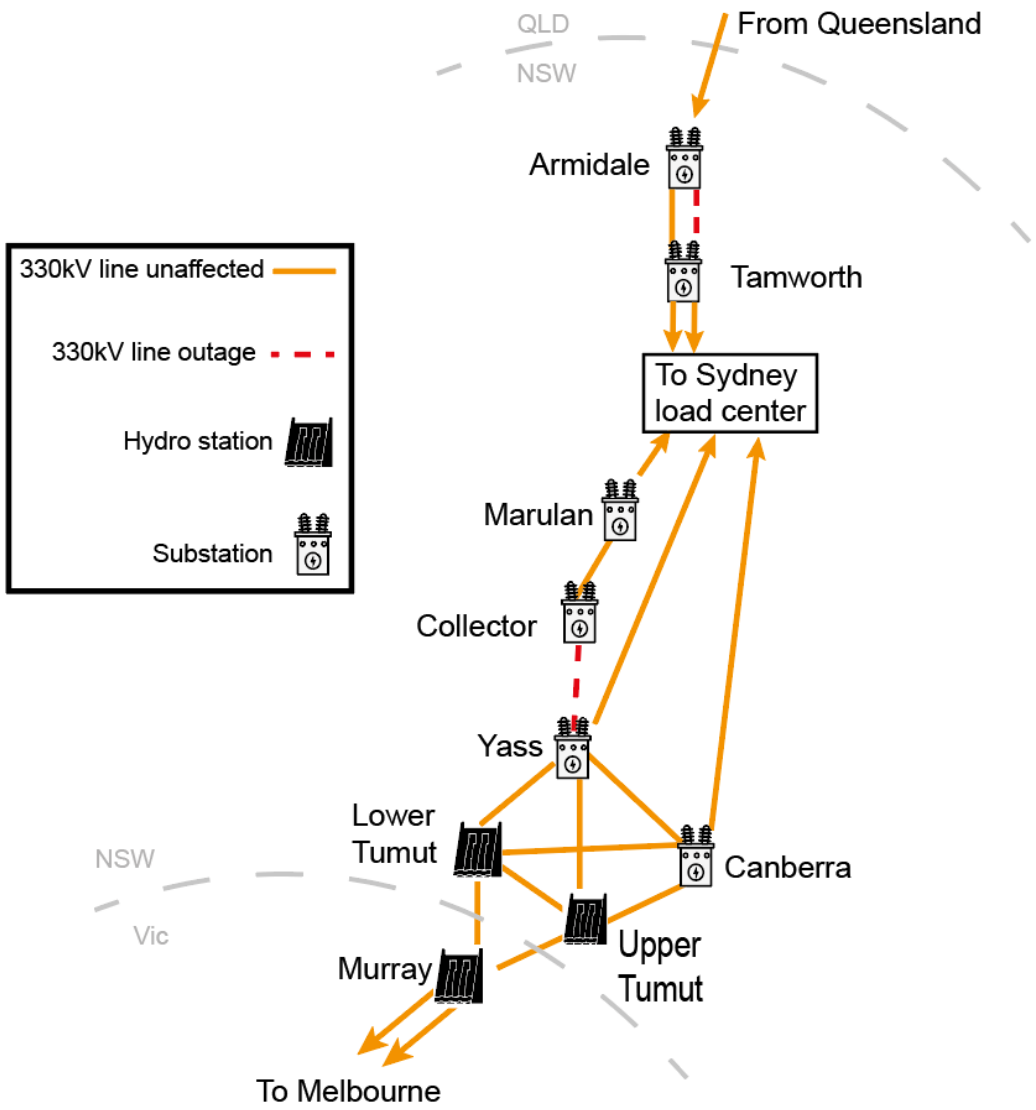
3.1 Collector to Yass line

A planned network outage on the Collector to Yass line in southern NSW resulted in a 1,400 MW amount of low-priced generation unable to reach key load centres including Sydney (Figure 3.3). This network outage impacted all high-priced days.

The outage started on 3 April and was originally scheduled to end on 31 May but was extended numerous times. The line returned to service on 18 June.

A constraint to manage the outage reduced flows over the Victoria to NSW Interconnector and significantly limited the amount of low-priced generation NSW could access from Victoria. During the high-priced days, flows over the Victoria to NSW Interconnector were often forced out of NSW into Victoria to manage the network congestion.

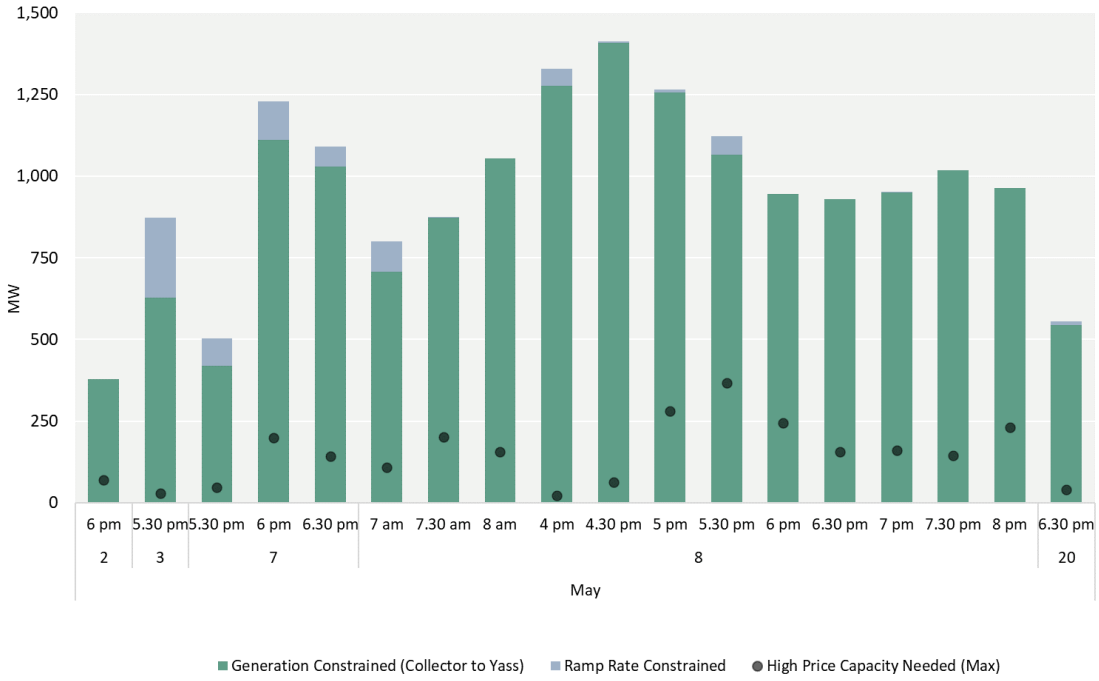
Figure 3.2 Network diagram



Source: AER.

The location of the outage also meant that up to 1,400 MW of low-priced generation in southern NSW was unable to make it to market. This included generation from hydro powered power stations (Tumut and Upper Tumut), gas fired power stations (Uranquinty), as well as from large wind farms (Rye Park, Collector and Gullen Range) and batteries (Darlington Point and Riverina). For all high-priced intervals, the amount of low-priced generation behind the constraint (green bars in Figure 3.3) was more than the high-priced capacity that was ultimately needed to meet demand (black dots in Figure 3.3).

Figure 3.3 Low-priced generation in NSW unable to be dispatched



Source: AER analysis using NEM data.
Note: the green bars represent the amount of capacity that was unable to be dispatched because it was on the wrong side of the Collector to Yass outage. The black dot is the amount of high-priced capacity that was needed to meet demand. The blue bars are the amount of capacity that could not be dispatched because the generator was unable to ramp up faster. This chart does not include units that are starting up and could not sync and dispatch in time for the high price.

3.2 Tamworth to Armidale line

A planned network outage on the Armidale to Tamworth line in northern NSW from early 7 May until 19 May, reduced amount of low-priced generation NSW could access from Queensland and contributed to the high prices on 7 and 8 of May.

Constraints to manage the outage on the Armidale to Tamworth line limited flows over both the Queensland to NSW Interconnector (QNI) and the Terranora interconnector. For example, QNI was flowing at around 500 MW across the high prices on 7 and 8 May compared to its nominal southbound capacity of 1,300 MW.

The network outage on the Armidale to Tamworth line also contributed to high FCAS prices in Queensland on 7 and 8 May (Chapter 10). Queensland had to source its own FCAS locally and had high requirements (more than 200 MW on average) in lower 6 second services. There was limited lower 6 second services available and this resulted in high FCAS prices.

4 Generator outages in NSW

A significant amount of generally low-priced baseload capacity was unavailable in NSW due to mostly unplanned generator outages and plant issues in May. These peaked on 8 May when black coal generator outages and plant issues at Origin's Eraring power station and Delta's Vales Point power station meant 2,500 MW of baseload capacity was unavailable (Figure 3.1). The impact of these outages on prices was exacerbated by the network outages described above in Chapter 3.

4.1 Eraring

On 2 May, the first of the high-priced days, 2 Eraring units tripped, removing up to 1,440 MW of generally low-priced capacity from the market. Both units were out during the high prices that occurred on 2, 3, 7 and 8 May and one unit remained out on 20 May. In addition, Eraring unit 4 reduced capacity to around 500 MW of its 720 MW registered due to technical issues which impacted the high prices on 2 and 3 May.

4.2 Vales Point

Early on 8 May, Vales Point unit 5 (660 MW) tripped, removing low-priced capacity from the market until 24 May. In addition, Vales Point unit 6 had been struggling with plant issues since the start of the month and was offering between around 200 MW and 260 MW of its 660 MW registered capacity until it went offline for 4 days on 17 May. These outages and plant issues impacted all the high-priced days.

4.3 Bayswater

AGL's Bayswater unit 4 (660 MW) entered a planned outage on 19 April with an expected return date of 4 May. While it started returning to service on 3 May, it did not permanently reach full capacity and was offering around 400 MW of its 660 MW registered capacity until 10 May due to technical issues. The outage and slow return to full capacity impacted the high prices on 2, 3, 7 and 8 May.

4.4 Reserve shortfalls

These outages contributed to the Australian Energy Market Operator (AEMO) forecasting low-level reserve shortfalls on 2, 7, 8 and 20 May. These shortfalls were largely supply driven not demand related (Table 2.1). When there is a forecast tightening of supply and demand conditions, AEMO takes proactive steps to manage reserve shortfalls by issuing market notices to seek a response from market participants. If the market response is not adequate, an actual lack of reserve notice is issued as it becomes an operational reality.[5]

[5] More information on LOR notices can be found in the AEMO LOR factsheet.

5 Some participants reduced the share of capacity offered at low prices

Baseload generators generally offer most of their capacity at low prices during evening peaks. However, at times during high prices, only around half of the registered baseload capacity in NSW was offered below $5,000 per MWh. This was mostly due to outages and technical issues, but also because AGL and EnergyAustralia (EA) offered a significant amount of capacity at Bayswater and Mt Piper respectively above $5,000 per MWh. Some of this was due to rebidding on the day (Chapter 9). While rebidding to maximise profits is permissible under the National Electricity Rules, the behaviour may not have been in the best interests of energy consumers.

AGL offered a higher proportion of Bayswater's capacity at or near the price cap from 2 May (the first high-priced day) when compared to the previous week. On 7, 8 and 20 May, for example, it offered near 30% of Bayswater's capacity at or near the price cap (Table 5.1).

Similarly, EA offered Mt Piper's capacity above $5,000 per MWh for a small window around 6 pm from 2 May onwards. On 8 May, it offered 35% of Mt Piper's capacity at or near the price cap (Table 5.1).

This offer behaviour represents quite a contrast with offer behaviour of the previous week when all station capacity was offered below $5,000 per MWh across the evening peaks.

Table 5.1 Average capacity and percent offered above $5,000 per MWh

Date	Bayswater	Mt Piper	Vales Point	Eraring
Evening peak of previous week	0 MW (0%)	0 MW (0%)	0 MW (0%)	0 MW (0%)
2 May	250 MW (12%)	0 MW (0%)	60 MW (7%)	0 MW (0%)
3 May	375 MW (16%)	250 MW (17%)	23 MW (3%)	0 MW (0%)
7 May	649 MW (26%)	253 MW (19%)	2 MW (< 1%)	0 MW (0%)
8 May	826 MW (31%)	498 MW (35%)	2 MW (< 1%)	0 MW (0%)
20 May	770 MW (29%)	160 MW (11%)	0 MW (0%)	0 MW (0%)

0 - 10%	11 - 20%	21% +

Source: AER analysis using NEM data.
Note: The average evening peak of the previous week is calculated between 22 April to 26 April and between 6 pm to 7.30 pm. For other days, the figures are calculated for only high-priced periods. The station percentage of capacity offered above $5,000 per MWh is calculated by dividing total offers for that 30-minute period by total offers for that period and averaging it across the high-priced intervals in the day.

6 Rebidding for commercial and technical reasons contributed to the high prices

6.1 Rebidding for commercial reasons

The market conditions described in the previous chapters created the opportunity for some market participants to put upward pressure on prices and profit maximise by rebidding capacity from low to high prices. The participants that rebid the most capacity for commercial reasons were AGL at Bayswater and EA at Mt Piper. For example, on 8 May AGL shifted up to 800 MW of capacity at Bayswater over several rebids, and EA shifted up to 200 MW of capacity at Mt Piper over several rebids, from low to high prices (Chapter 9.4.4).

6.2 Rebidding for technical reasons

Participants also removed or rebid capacity for technical reasons. Plant issues at Mt Piper, Eraring and Bayswater reduced available capacity during the high prices. For example, on 2 May, technical issues at Mt Piper and Eraring reduced low-priced capacity by 420 MW. However, this was partly offset by rebidding of high-priced capacity to lower prices by other generators in their portfolios. The net impact of the two participants on 2 May meant that 245 MW of low-priced capacity was removed or rebid (Chapter 9.1.3).

Details on participant rebids are included in Chapter 9 and the appendices.

7 Other drivers of high prices

7.1 Co-optimisation of energy and FCAS markets

Prices exceeded $5,000 per MW at times on 7 and 8 May as high FCAS prices in Queensland (Chapter 10) contributed to setting the price in NSW. AEMO's dispatch engine simultaneously optimises the energy and FCAS markets to determine the least cost outcome. This can lead to a trade-off between the energy and FCAS markets.[6] This occurred for 4 of the high-priced 5-minute intervals on 7 May and for 12 intervals, or almost 20%, of the high-priced intervals on 8 May (Table 8.1).

7.2 Some units were unable to start or ramp up quickly enough to lower the price

Generators were unable to start or ramp up quickly enough to help lower the price. This impacted high-priced intervals on 2, 3, 7 and 8 May (Figure 3.3).

For example, on 3 May, generation unable to ramp up quickly enough meant that 244 MW of low-priced capacity was unable to be dispatched while only around 30 MW of high-priced capacity was needed. EA, Origin and AGL offered their capacity with ramp rates at or close to the minimum allowed by AEMO (Table 7.1). If the unit ramp rates were near their maximum or accurately reflected their technical ability, high prices on 3 May and two further 30-minute intervals (one on 7 and 8 May) would likely not have occurred.

Table 7.1 5-minute ramp up rates of ramp rate constrained generation on 3 May

Participant	Unit	Offered ramp rate	Minimum up ramp rate
EnergyAustralia	Mt Piper unit 1	15	15
AGL Energy	Bayswater unit 4	20	15
Origin Energy	Eraring unit 4	25	15

Note: The minimum ramp rate information was extracted on 4 July.

Further information on this can be found in Chapter 9 and Figure 3.3.

[6] More information can be found in the AEMO Guide to Ancillary Services in the National Electricity Market.

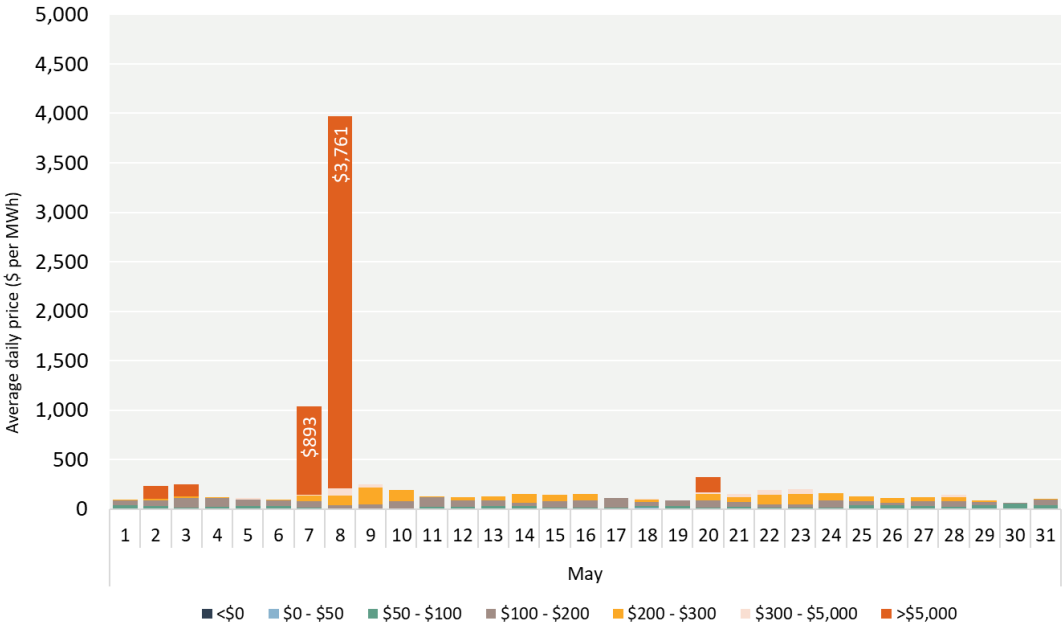
8 Impact of high price events on average spot and forward prices

8.1 Impact on average spot prices

The 5 high-priced days in NSW contributed to the average May price of $297 per MWh (Volume Weighted Average). Prices above $5,000 per MWh contributed $161 per MWh to this price. Of this, high prices on 8 May contributed the majority (Figure 8.1).

The NSW price of $297 per MWh for May compared to $100 per MWh in Queensland and $141 per MWh in Victoria. It was $202 per MWh higher than the previous month and $87 per MWh higher than May a year earlier.

Figure 8.1 Contribution of different price bands to the daily price in May in NSW



Source: AER analysis using NEM data.
Note: Contribution of different spot prices within price bands, to the volume weighted average daily price.

8.1.1 Impact on retailers and consumers

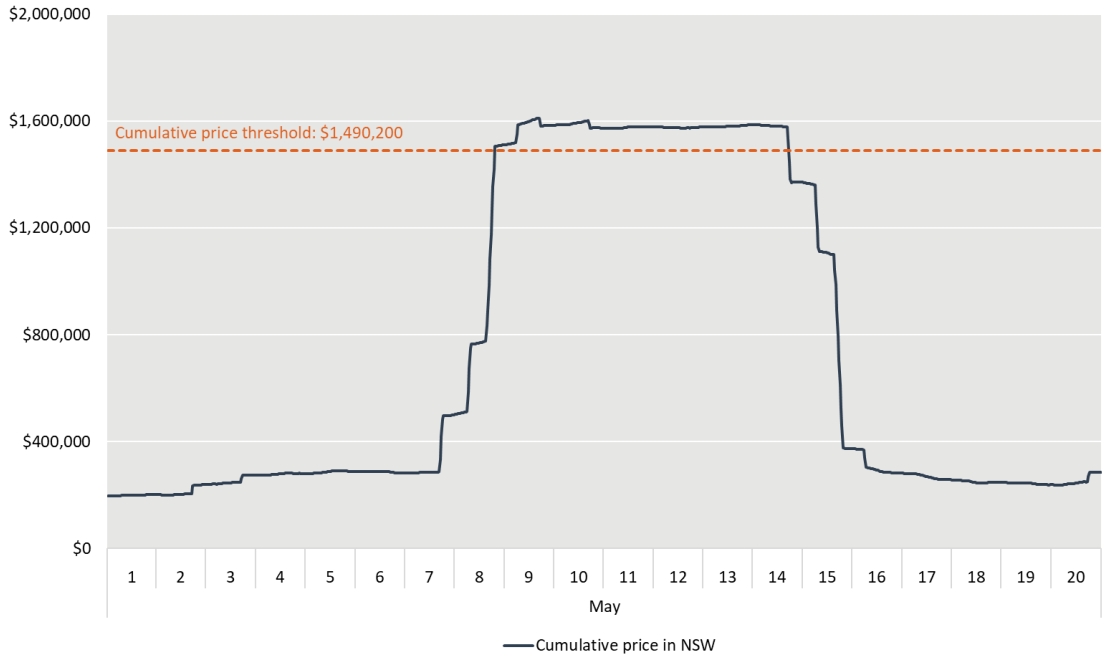
Retailers generally enter contracts with wholesale generators to buy electricity. There has been a general uplift in forward prices across all forward quarters and retailers entering into contracts in the future will require these elevated contracts (Chapter 8.4 and Figure 8.3). Retailers are likely to reflect their increased cost to buy electricity in future contracts with consumers. However, the AER sets a maximum price that retailers can charge electricity consumers through the Default Market Offer.[7]

[7] More information on the Default Market Offer can be found on the AER website.

8.2 Cumulative price threshold and administered pricing

Many high prices in one week caused the cumulative price (7-day rolling sum) to exceed the cumulative price threshold (CPT) [8] of $1,490,200 in NSW during the evening of 8 May. The breach of the CPT triggered a period of administered pricing to protect customers from extended high prices.[9] The energy price in NSW was capped at $600 per MWh until the cumulative (uncapped) price fell back below the threshold. The prices for FCAS were also capped in NSW. The administered price period went from 7.55 pm on 8 May to 15 May which resulted in 5 less occasions that the price would have been high. The last time AEMO declared administered pricing was during the market event in winter 2022.[10]

Figure 8.2 Cumulative price in NSW



Source: AER analysis using NEM data.

Note: The cumulative price is a 7-day rolling sum of uncapped wholesale prices in a region. The cumulative price threshold for the 2023-2024 financial year was $1,490,200. A breach of the CPT triggers a period of administered pricing to protect customers from extended high prices. The energy price is capped at $600 per MWh until the cumulative (uncapped) price falls back below the threshold.

8.3 Bayswater and Mt Piper often set the high prices

AGL and EA offered a significant share of Bayswater's and Mt Piper's capacity at high prices (Chapter 5). These 2 stations set the price almost half of the time during the high price events (Table 8.1).

[8] More information on the CPT can be found on the AEMC website.

[9] AEMO, Market Notice 116550, 8 May 2024.

[10] AER, June 2022 Market Events Report, December 2022.

Table 8.1 Stations setting 5-minute price during high-priced intervals

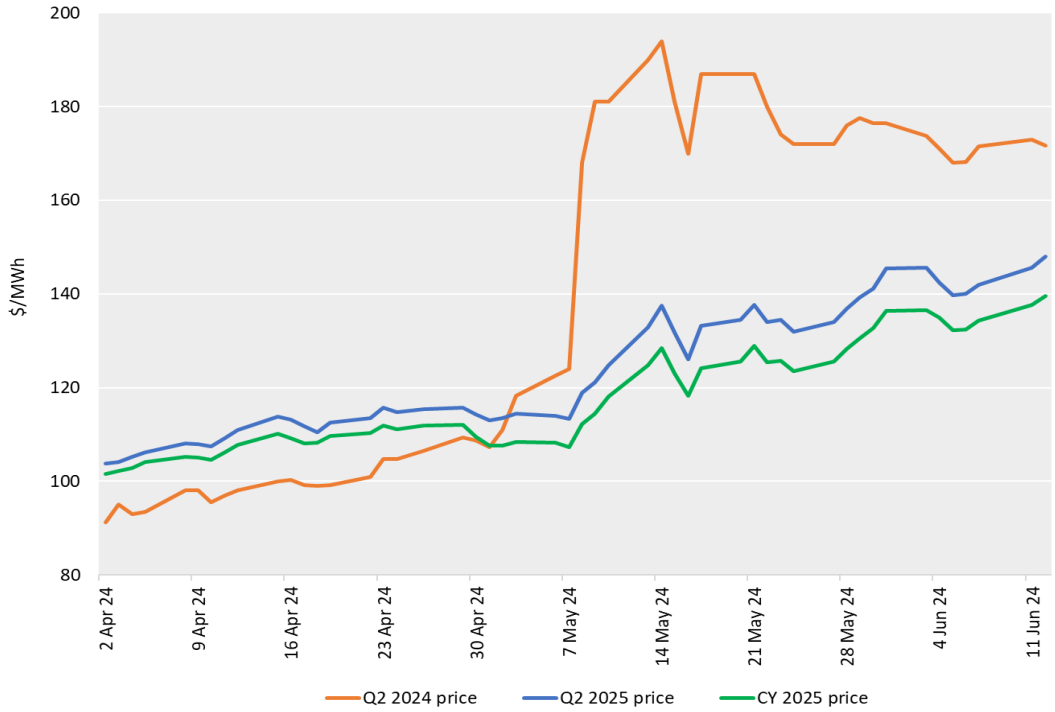
Date	AGL Bayswater	EA Mt Piper	EA Tallawarra	Infigen Wallgrove BESS	Other	FCAS co-optimisation	Number of high-priced intervals
2 May	-	-	-	1	1	-	2
3 May	-	-	-	2	-	-	2
7 May	7	2	-	2	-	4	15
8 May	11	19	9	9	5	12	65
20 May	2	-	-	-	-	-	2
Total	**20**	**21**	**9**	**14**	**6**	**16**	**86**

Note: Price was set above $5,000 per MWh due to energy in NSW being co-optimised with expensive FCAS in Queensland on 7 and 8 May, 16 times (Chapter 7.1) Other units setting price on 2 May includes Delta energy 1 time; on 8 May Snowy Hydro's Hunter Economic Zone Battery 3 times, Origin Energy's Shoalhaven hydro 2 times.

8.4 Impact on forward contract prices

In May, there was a general uplift in forward prices across all regions for all upcoming quarters. As expected, prices for the current quarter (Q2 2024) were impacted the most, increasing by $44 per MWh or 35% on 8 May. Prices for both Q2 2025 base futures and 2025 CY increased by around $5 per MWh or 5%. This uplift in forward prices continued throughout the weeks following the administered pricing event (Figure 8.3).

Figure 8.3 High spot prices on 8 May drove higher futures prices in NSW



Source: AER analysis using ASX Energy data.

Note: Settled base future prices for Q2 2024, Q2 2025 and Calendar Year 2025.

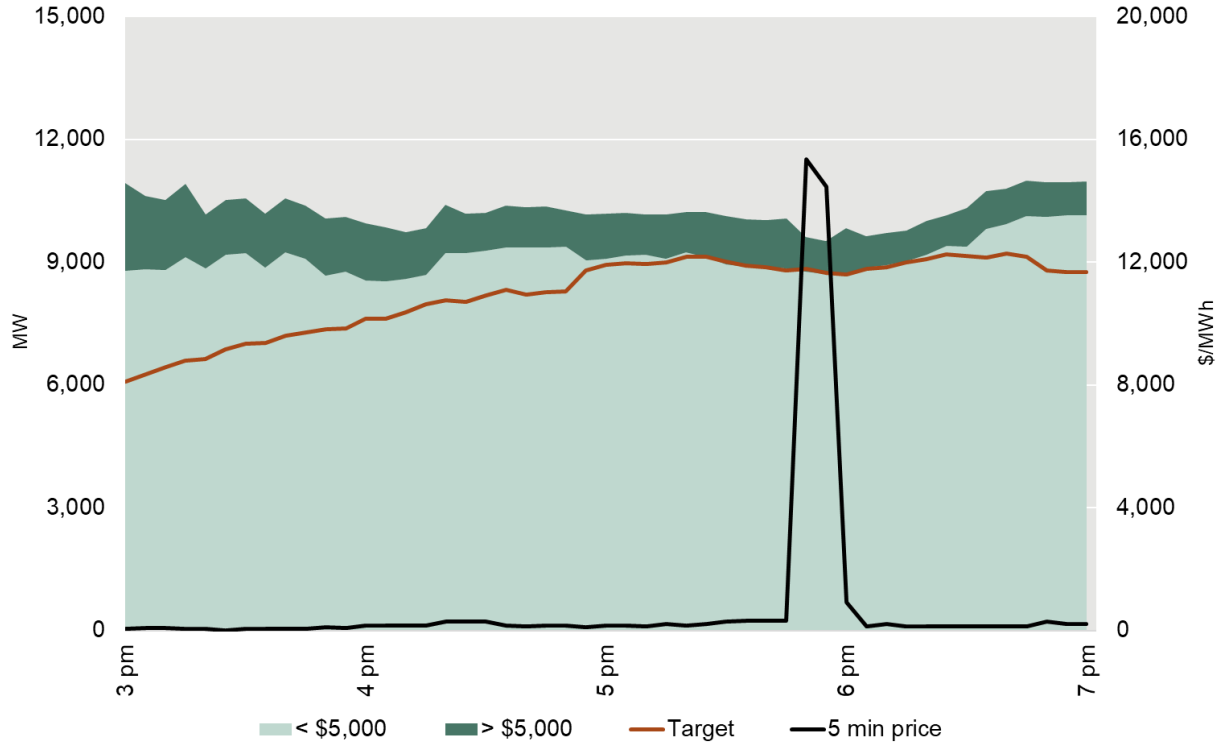
9 Five days of high energy prices in NSW

This chapter includes further analysis not earlier covered in chapters 3 - 8.

9.1 2 May 2024

On 2 May, the 30-minute price reached $5,279 per MWh at 6 pm. The high price was not forecast.

Figure 9.1 Capacity offered above and below $5,000 per MWh on 2 May



Source: AER analysis using NEM data.
Note: Capacity available below $5,000 per MWh refers to effective capacity in NSW.

9.1.1 Network outages

The planned network outage on the Collector to Yass line meant that over 378 MW of low-priced generation in southern NSW was unable to make it to market (Figure 3.3).

Terranora was flowing at around 80 MW due to a network outage on the Liddell to Tomago line (compared to its capacity of 210 MW).

The QNI interconnector was binding at around 1,000 MW from Queensland, limited (below its capacity of 1,300 MW) to protect NSW system security.

9.1.2 Generation start up constrained

Low-priced generation at Snowy Hydro's Colongra could not start fast enough to avoid the high price. Colongra offered 125 MW of low-priced capacity for all high-priced 5-minute intervals, none of which could not be dispatched in time.

9.1.3 Rebidding for commercial and technical reasons

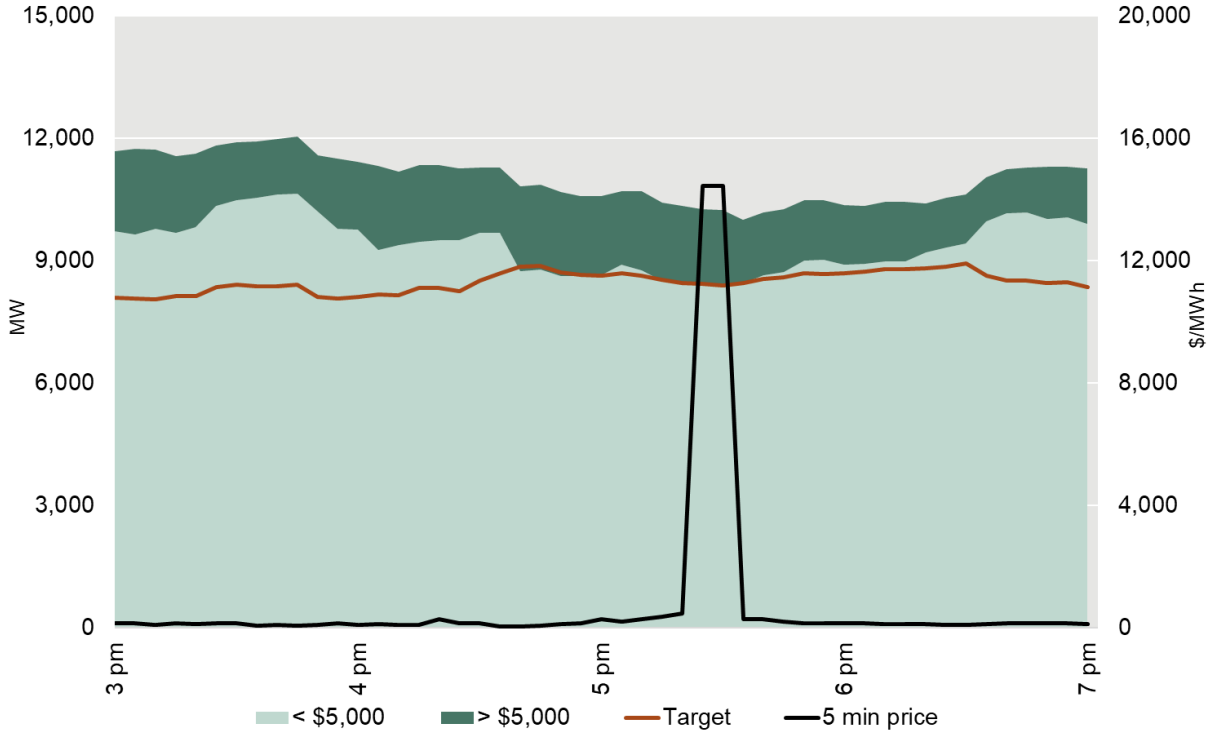
Rebidding for commercial and technical reasons contributed to the high price (Appendix A). Between 34 MW to 69 MW of high-priced capacity was needed to meet demand.

- At around 3 pm, EA removed 270 MW of low-priced capacity at Mt Piper due to extended testing, but this was partly offset by them shifting 90 MW of capacity from high to low prices.
- At around 5 pm, Origin removed 150 MW of low-priced capacity at Eraring due to a valve pressure issue, but this was partly offset by them shifting and adding 85 MW of capacity to lower prices.

9.2 3 May 2024

On 3 May, despite Bayswater unit 4 returning to service, the 30-minute price reached $5,036 per MWh at 5.30 pm. The high price was not forecast.

Figure 9.2 Capacity offered above and below $5,000 per MWh on 3 May



Source: AER analysis using NEM data.
Note: Capacity available below $5,000 per MWh refers to effective capacity in NSW.

9.2.1 Network outages

The planned network outage on the Collector to Yass line meant that over 600 MW of low-priced generation in southern NSW was unable to make it to market (Figure 3.3).

An outage on the Liddell to Tomago line limited flows from Queensland on the Terranora interconnector to 31 MW (compared to its capacity of 210 MW).

The QNI interconnector was binding at around 1,020 MW from Queensland to protect NSW system security (compared to its capacity of 1,300 MW).

9.2.2 Rebidding for commercial reasons

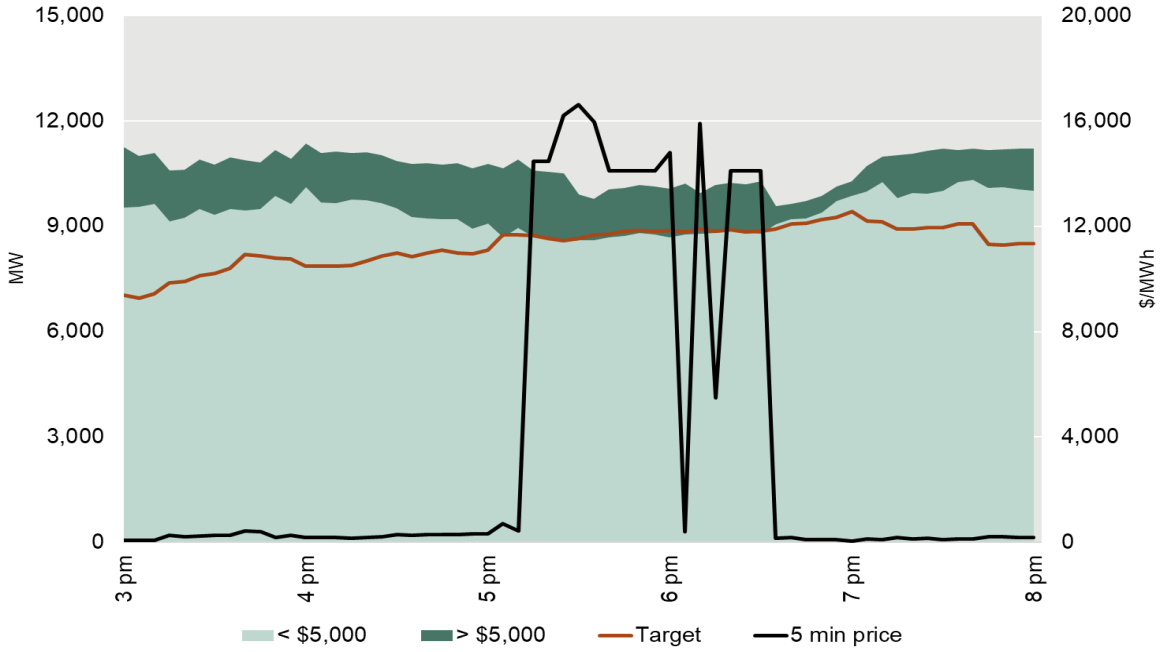
Rebidding for commercial reasons contributed to the high price (Appendix B). Between 26 MW to 29 MW of high-priced capacity was needed to meet demand.

- At 3.48 pm, AGL shifted 225 MW of capacity from low to high prices at Bayswater for a change in forecast prices.
- At 3.49 pm, EA shifted 250 MW of capacity from low to high prices at Mt Piper for a change in forecast prices.

9.3 7 May 2024

On 7 May, 30-minute prices exceeded $5,000 per MWh 3 times, at 5.30 pm, 6 pm and 6.30 pm. The price ranged between $10,480 per MWh and $14,523 per MWh. High prices were mostly forecast earlier in the day but not directly before dispatch.

Figure 9.3 Capacity offered above and below $5,000 per MWh on 7 May



Source: AER analysis using NEM data.
Note: Capacity available below $5,000 per MWh refers to effective capacity in NSW.

9.3.1 Network outages

The planned outage on the Collector to Yass line meant that on average around 850 MW of low-priced generation in southern NSW was unable to make it to market (Figure 3.3).

The planned outage on the Armidale to Tamworth line meant flows over QNI and Terranora interconnectors were reduced to 580 MW and to 36 MW respectively.

9.3.2 Generation ramp up constrained

Low-priced generation at Eraring could not ramp up quickly enough to avoid the high price. An average of around 80 MW of low-priced capacity could not be dispatched in time for the 5.30 pm period (Chapter 7.2).

9.3.3 Rebidding for commercial and technical reasons

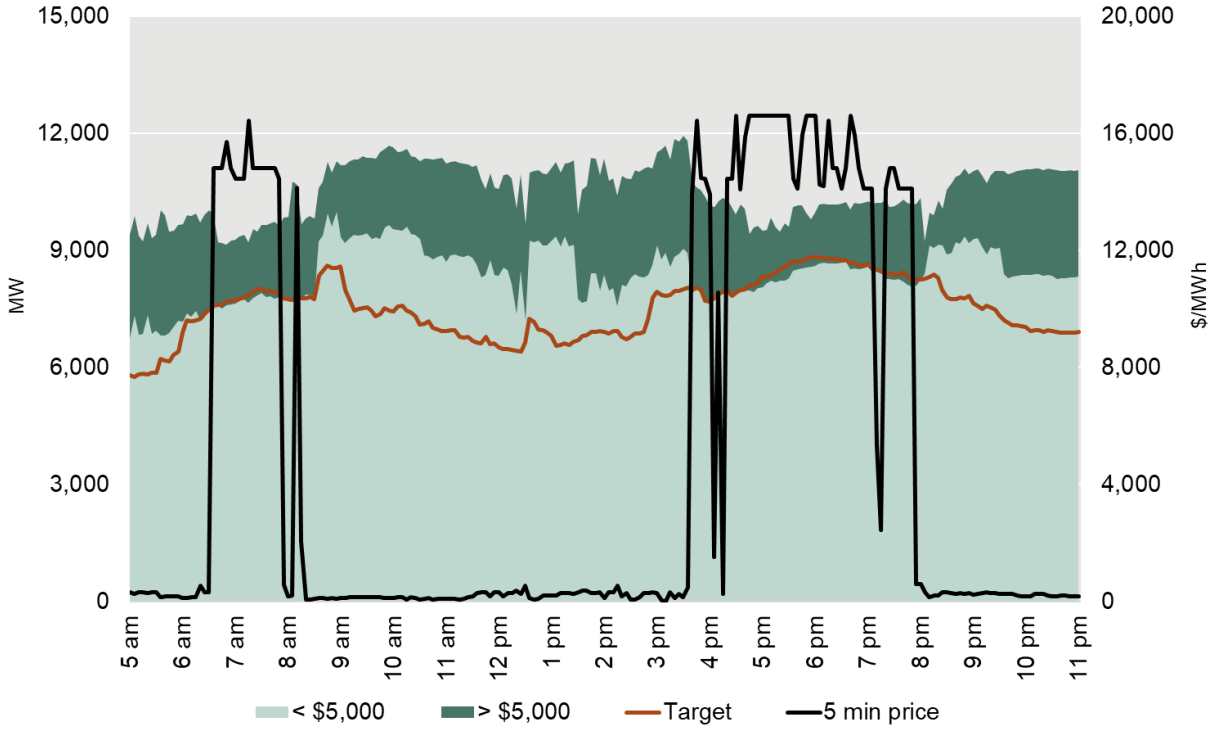
Rebidding for commercial and technical reasons contributed to higher prices (Appendix C). Between 3 MW to 199 MW of high-priced capacity was needed to meet demand.

- Around 5.20 pm, EA shifted 90 MW of capacity from low to high prices at Darlington Point and Riverena Energy Storage Systems due to a change in forecast prices.
- Between 5.30 and 6 pm, AGL shifted 740 MW of capacity from low to high prices at Bayswater due to a change in forecast prices and unexpected plant limits. Earlier in the day an addition 27 MW was removed due to unexpected plant limits.

9.4 8 May 2024

On 8 May, 30-minute prices exceeded $5,000 per MWh 3 times in the morning (7 am to 8 am) and 9 times in the afternoon and evening (4 pm to 8 pm). The cumulative price threshold was breached and administered pricing was triggered, capping the NSW energy and FCAS prices at $600 per MWh for 7 days (Chapter 8.2). Most of the high prices were forecast.

Figure 9.4 Capacity offered above and below $5,000 per MWh on 8 May



Source: AER analysis using NEM data.
Note: Capacity available below $5,000 per MWh refers to effective capacity in NSW.

9.4.1 Network outages

The planned network outage on the Collector to Yass line meant that on average around 1,000 MW of low-priced generation in southern NSW was unable to make it to market (Figure 3.3).

The planned outage on the Armidale to Tamworth line meant flows over QNI and Terranora interconnectors were reduced to 500 MW and to 35 MW respectively.

9.4.2 Generation start up constrained

Low-priced generation at Snowy Hydro's Colongra and Guthega as well as Origin's Shoalhaven could not start fast enough to avoid several of the 5-minute-high prices.

- Colongra was unable to dispatch 176 MW of low-priced capacity across a total of 4 high-priced 5-minute intervals.
- Guthega was unable to dispatch 31 MW of low-priced capacity in a single high-priced 5-minute interval.

- Shoalhaven was unable to dispatch 40 MW of low-priced capacity in a single high-priced 5-minute interval.

9.4.3 Generation ramp up constrained

Low-priced generation at Eraring, Bayswater, and Mt Piper could not ramp up quickly enough to avoid the high price. An average of around 54 MW of low-priced capacity could not be dispatched in time for the 4 pm period (Chapter 7.2).

9.4.4 Rebidding for commercial and technical reasons

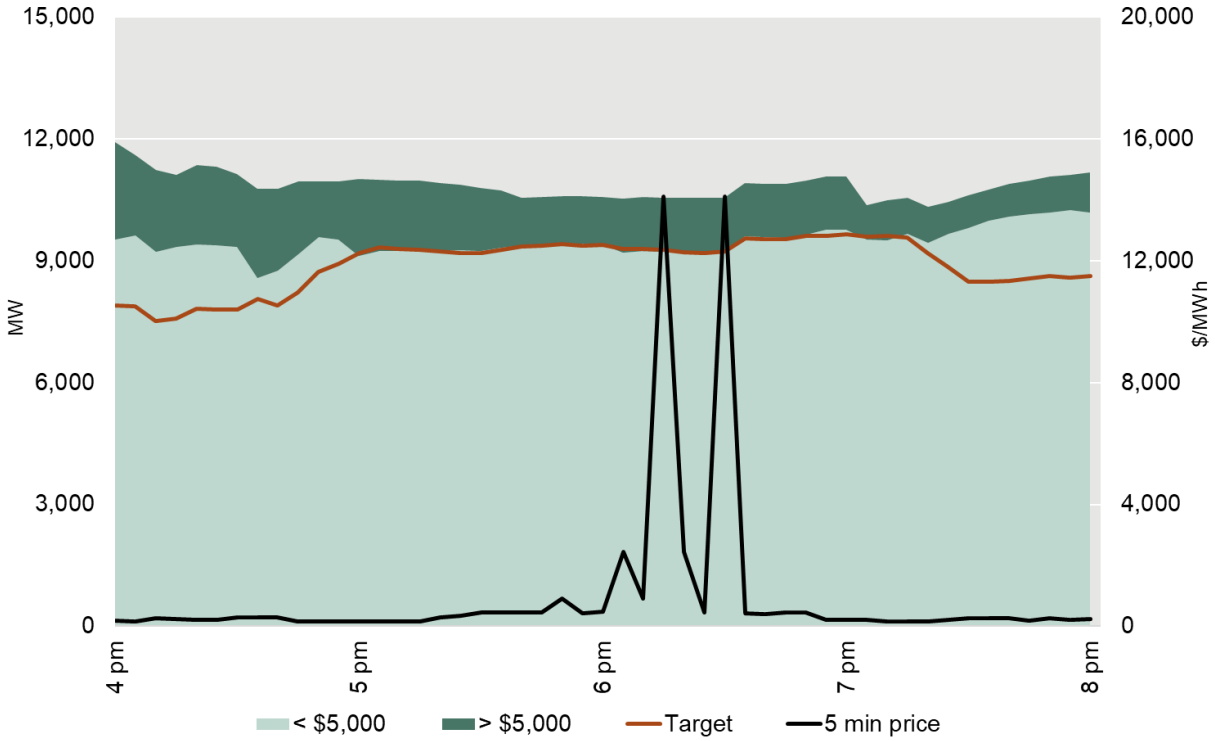
Rebidding for commercial and technical reasons contributed to higher prices (Appendix D). Between 0 MW to 368 MW of high-priced capacity was needed to meet demand.

- From 1.29 pm on 7 May, EA shifted up to a total of 200 MW of capacity from low to high prices for commercial reasons. They also added an additional 280 MW of capacity priced at the cap.
- From 2.49 pm on 7 May, AGL shifted up to a total of 800 MW of capacity from low to high prices mainly commercial reasons.

9.5 20 May 2024

On 20 May, the 30-minute price reached $5,743 per MWh at 6.30 pm, despite the resolution of the Tamworth to Armidale line outage and return to service of an Eraring unit. The high prices were forecast.

Figure 9.5 Capacity offered above and below $5,000 per MWh on 20 May



Source: AER analysis using NEM data.
Note: Capacity available below $5,000 per MWh refers to effective capacity in NSW.

9.5.1 Network outage

The planned outage on the Collector to Yass line meant that on average around 550 MW of low-priced generation in southern NSW was unable to make it to market (Figure 3.3).

9.5.2 Rebidding for commercial reasons

Rebidding for commercial reasons contributed to higher prices (Appendix E). Between 3 MW to 40 MW of high-priced capacity was needed to meet demand.

- From 2.24 pm, AGL at Bayswater shifted up to a total of 550 MW of capacity from low to high prices for commercial reasons.

10 Two days of high FCAS prices in Queensland

On 7 May, the local price for lower 6 second FCAS in Queensland exceeded $5,000 per MW for three consecutive 30-minute periods in the evening. On 8 May, it exceeded $5,000 per MW for three consecutive 30-minute periods in the morning and for a further nine consecutive 30-minute periods starting in the afternoon.

Table 10.1 High local prices for lower 6 second FCAS in Queensland on 7 May

Date	Time	30-minute L6 price ($/MW)
7 May	5.30 pm	9,715
	6 pm	13,656
	6.30 pm	10,005

Table 10.2 High local prices for lower 6 second FCAS in Queensland on 8 May

Date	Time	30-minute L6 price ($/MW)
8 May	7 am	14,162
	7.30 am	12,329
	8 am	9,074
	4 pm	11,015
	4.30 pm	8,819
	5 pm	15,166
	5.30 pm	15,628
	6 pm	14,777
	6.30 pm	13,801
	7 pm	14,174
	7.30 pm	10,319
	8 pm	10,984

10.1 Planned network outage in NSW

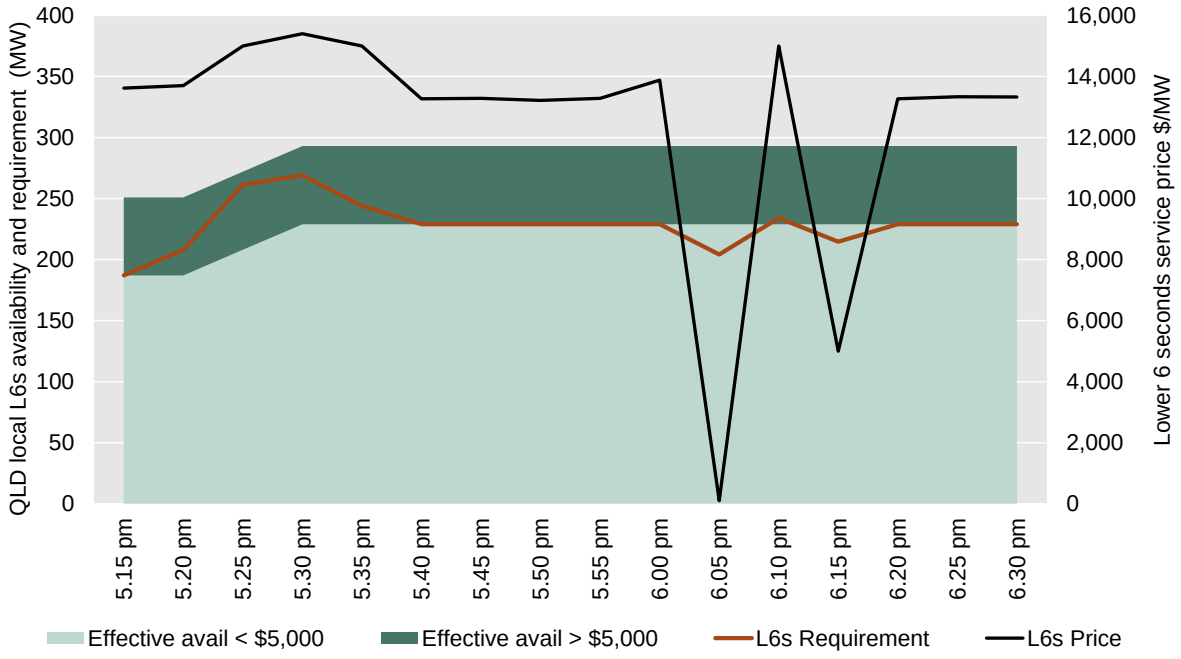
The network outage on the Armidale to Tamworth line in NSW that contributed to the high energy prices in NSW on 7 and 8 May was the key driver for the high local FCAS prices in Queensland that occurred at the same time.

The outage on the Armidale to Tamworth line in NSW created a credible risk that Queensland could be electrically islanded from the NEM. To provide for this contingency, Queensland was required to provide its own local FCAS.

For several 5-minute intervals, the amount of local Lower 6 seconds service required in Queensland was higher than was effectively available priced below $5,000 per MW. As a result, some high-priced Lower 6 second capacity was enabled.

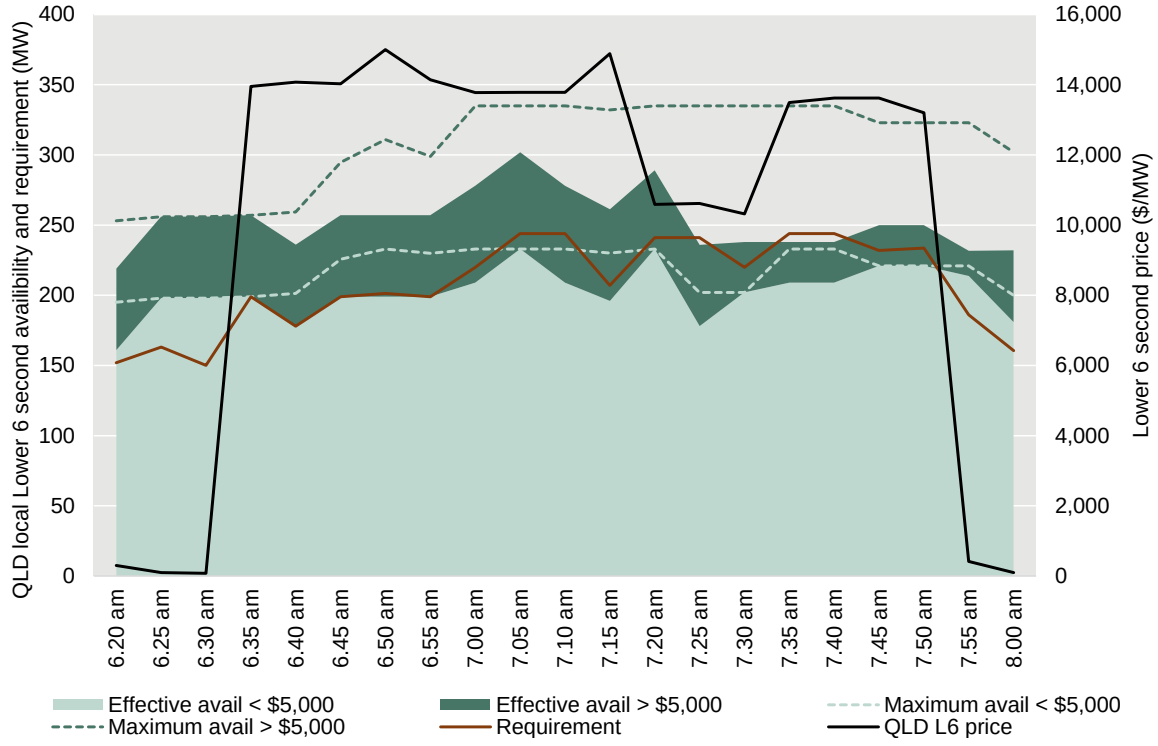
The cost of enabling the local Lower 6 second services in Queensland on 7 and 8 May was over $21 million, out of around $25 million total local costs for Q2 2024.

Figure 10.1 Lower 6 second FCAS, Queensland, 7 May



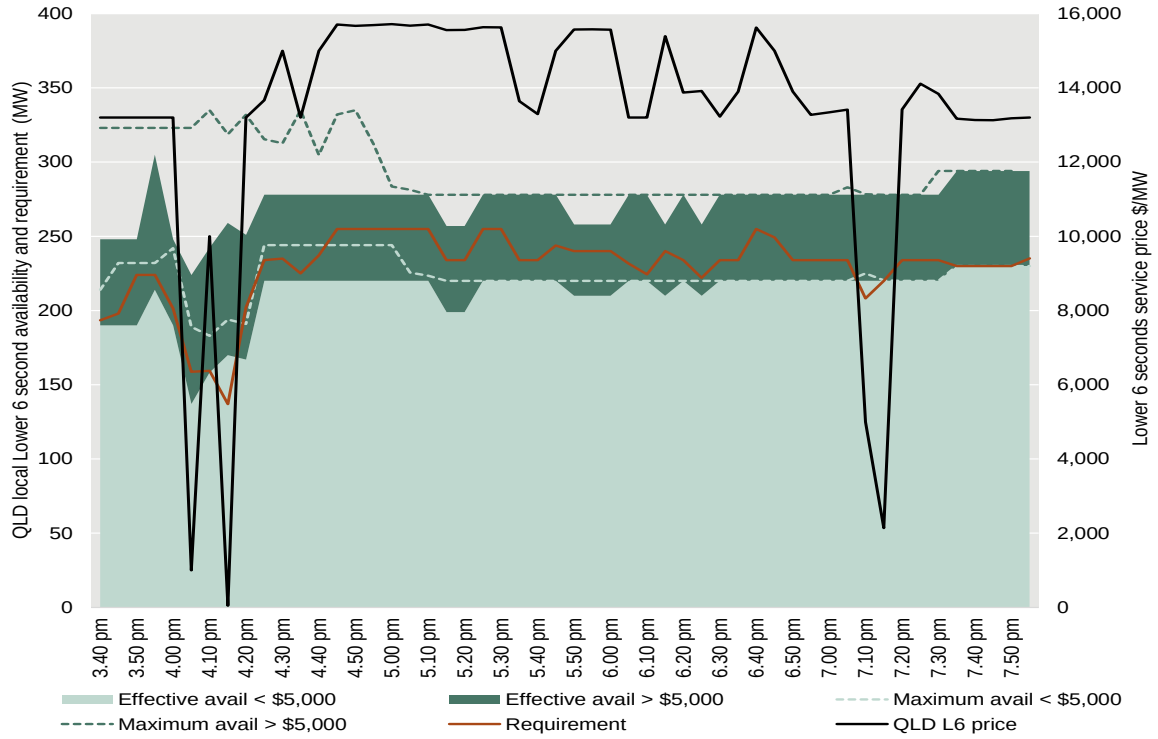
Source: AER analysis using NEM data.
Note: Capacity available below $5,000 per MW refers to effective availability in Queensland.

Figure 10.2 Lower 6 second FCAS, Queensland, 8 May, morning



Source: AER analysis using NEM data.
Note: Capacity available below $5,000 per MW refers to effective availability in Queensland.

Figure 10.3 Lower 6 second FCAS, Queensland, 8 May, afternoon



Source: AER analysis using NEM data.
Note: Capacity available below $5,000 per MW refers to effective availability in Queensland.

10.2 Rebids contributed to some of the high FCAS prices

There were no significant rebids on 7 May. Rebidding from low to high prices in Lower 6 seconds for both commercial and technical reasons contributed to some of the high prices on 8 May.

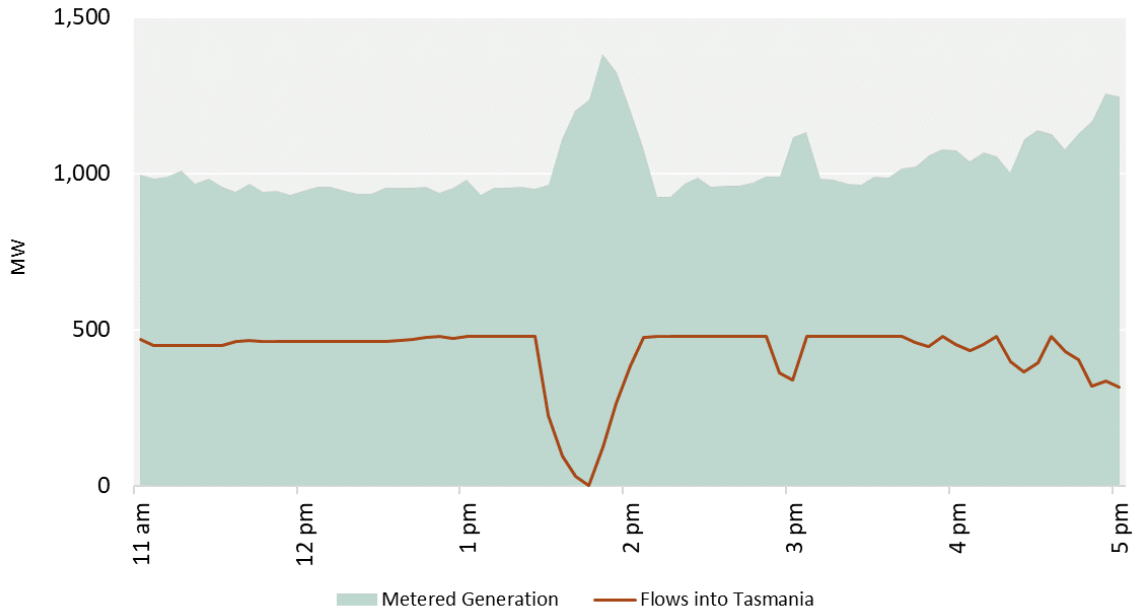
- At 7.19 am, Alinta Energy rebid 31 MW offered at Braemar A from low to high prices in response to changes in forecast energy prices in NSW. This contributed to the high price at 7.30 am as only 18 MW of high-priced capacity was needed to meet the lower 6 second requirement.
- At 7.39 am, CS Energy rebid capacity at Gladstone unit 2, removing all 12 MW of low-priced capacity offered in Lower 6 second services due to technical issues. This contributed to the high price at 7.45 am as only 11 MW of high-priced capacity was needed to meet the Lower 6 second requirement.
- At 3.58 pm AGL Energy rebid capacity at Wandoan BESS, shifting 25 MW from low to high prices due to technical issues. Just over 1 MW of high-priced capacity was required for the 4.10 pm interval, and the unit set the price for that interval.
- Over two rebids from 3.57 pm, Bouldercombe Battery Project Co rebid capacity at Bouldercombe Battery Project, effectively shifting 24 MW from low to high prices for the 4.10 pm interval due to change in its forecast state of charge. Just over 1 MW of high-priced capacity was required for the 4.10 pm interval.

11 30 minutes of high energy prices in Tasmania

On 25 June, the 30-minute price reached $5,644 per MWh at 2 pm due to a technical error creating an apparent loss of inertia. This limited flows into Tasmania across Basslink which then required Tasmanian generation to replace it (Figure 11.1). While almost all capacity in Tasmania was offered below $5,000 per MWh, not enough could make it to market due to being ramp up limited, generation constrained and limited due to its offers in the FCAS market (Figure 11.2). AEMO advised there was no actual inertia or system security risk during this event.[11]

These high prices were not forecast and rebidding did not contribute to the high price.

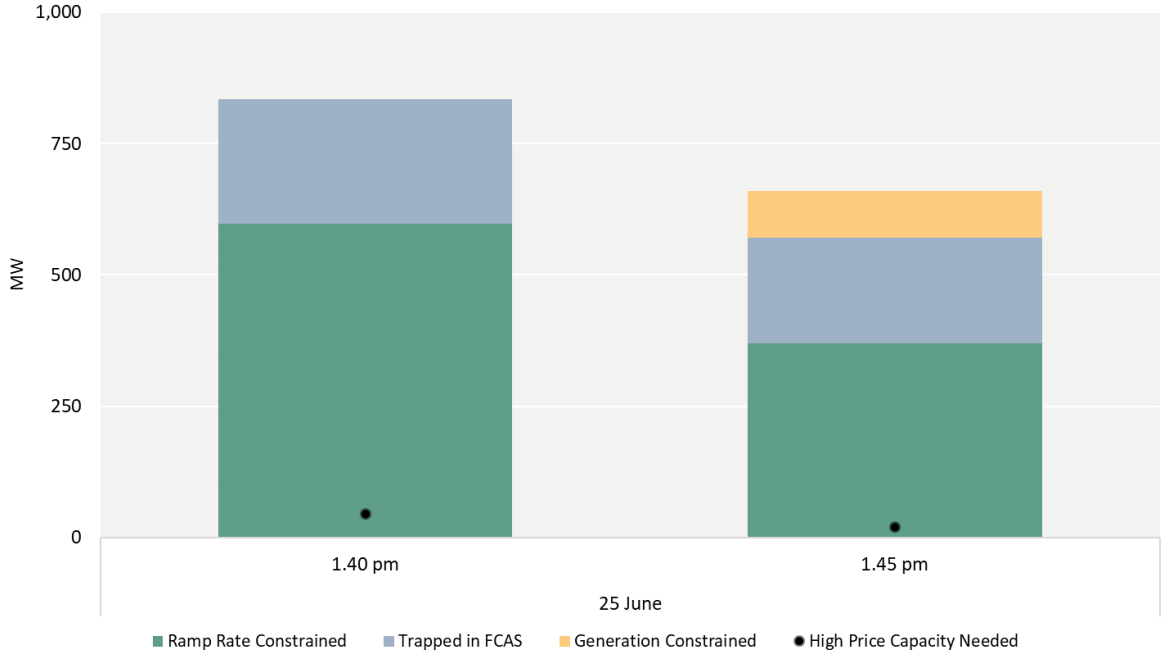
Figure 11.1 Metered generation and interconnector flows in Tasmania



Source: AER analysis using NEM data.
Note: The green is metered generation in Tasmania and the red line are target flows into Tasmania.

[11] AEMO, Fortnightly Operational Industry Briefing, 27 June 2024.

Figure 11.2 Low-priced generation in Tasmania unable to be dispatched



Source: AER analysis using NEM data.
Note: the green bars are the amount of capacity that could not be dispatched because the generator was unable to ramp up faster. The blue bars represent the amount of capacity that was unable to be dispatched because units were trapped in FCAS. The orange bar represents the amount of capacity that was unable to be dispatched as it was behind a constraint. The black dot is the amount of high-priced capacity that was needed to meet demand.

Appendix A – Significant rebids, 2 May

These tables list the rebids that contributed to the high prices on 2 May in NSW. Only the 5-minute intervals with a high price and where rebidding contributed to the high price are included.

5.50 pm (69 MW of high-priced capacity was needed)

Submitted time	Time effective	Participant	Station	Capacity rebid (MW)	Price from ($/MWh)	Price to ($/MWh)	Rebid reason
2.53 pm		EA	Mt Piper	-270	<62	N/A	Adj avail bands due to revised testing profile SL
3.04 pm		EA	Darlington Point Energy Storage	25	16,600	-1,000	Autobidder activated at 14:55:41 on 02 May 2024
3.04 pm		EA	Riverena Energy Storage	65	16,600	-1,000	Autobidder activated at 14:55:50 on 02 May 2024

5.55 pm (34 MW of high-priced capacity was needed)

Submitted time	Time effective	Participant	Station	Capacity rebid (MW)	Price from ($/MWh)	Price to ($/MWh)	Rebid reason
2.53 pm		EA	Mt Piper	-270	<62	N/A	Adj avail bands due to revised testing profile SL
3.04 pm		EA	Darlington Point Energy Storage	25	16,600	-1,000	Autobidder activated at 14:55:41 on 02 May 2024
3.04 pm		EA	Riverena Energy Storage	65	16,600	-1,000	Autobidder activated at 14:55:50 on 02 May 2024
4.41 pm		Origin	Shoalhaven	40	16,600	-1,000	INC NSW DEM 5PD 9384 MW > 30PD 9087 MW @ 1730 SL
4.48 pm		Origin	Eraring	-150	<50	N/A	Change in avail - Valve Pressure Issues – SL
4.51 pm		Origin	Shoalhaven	40	16,600	-1,000	Correct bid - PB1 updated for correct MW SL
5.09 pm		Origin	Uranquinty	11	N/A	-1,000	Change in avail - peak firing enabled SL
5.17 pm		Origin	Uranquinty	-6	-1000	N/A	Change in avail - ambient conditions SL

Appendix B – Significant rebids, 3 May

These tables list the rebids that contributed to the high prices on 3 May in NSW. Only the 5-minute intervals with a high price and where rebidding contributed to the high price are included.

5.25 pm (29 MW of high-priced capacity was needed)

Submitted time	Time effective	Participant	Station	Capacity rebid (MW)	Price from ($/MWh)	Price to ($/MWh)	Rebid reason
3.48 pm		AGL	Bayswater	225	-1,000	16,600	15:45~A~050 Chg in AEMO PD~56 Price increase 5MPD vs PD NSW $14450 vs $199.68 16:45
3.49 pm		EA	Mt Piper	250	282	14,800	Adj bands - mat chg in NSW RRP for HHE 17:00, $7356 P5 vs $200 P30 at 15:45 SL

5.30 pm (26 MW of high-priced capacity was needed)

Submitted time	Time effective	Participant	Station	Capacity rebid (MW)	Price from ($/MWh)	Price to ($/MWh)	Rebid reason
3.48 pm		AGL	Bayswater	225	-1,000	16,600	15:45~A~050 Chg in AEMO PD~56 Price increase 5MPD vs PD NSW $14450 vs $199.68 16:45
3.49 pm		EA	Mt Piper	250	282	14,800	Adj bands - mat chg in NSW RRP for HHE 17:00, $7356 P5 vs $200 P30 at 15:45 SL

Appendix C – Significant rebids, 7 May

These tables list the rebids that contributed to the high prices on 7 May in NSW. Only the 5-minute intervals with a high price and where rebidding contributed to the high price are included.

5.20 pm (3 MW of high-priced capacity was needed)

Submitted time	Time effective	Participant	Station	Capacity rebid (MW)	Price from ($/MWh)	Price to ($/MWh)	Rebid reason
1.24 pm		AGL	Bayswater	95	16,600	<36	040 Chg in contract pos~40 callable contract triggered
4.41 pm		AGL	Bayswater	115	36	16,600	050 Chg in AEMO PD~50 PD DISPATCHABLEGENERATION change [NSW] [-204MW AVG] for PE 17:00 to 18:00

5.30 pm (48 MW of high-priced capacity was needed)

Submitted time	Time effective	Participant	Station	Capacity rebid (MW)	Price from ($/MWh)	Price to ($/MWh)	Rebid reason
4.41 pm		AGL	Bayswater	115	36	16,600	050 Chg in AEMO PD~50 PD DISPATCHABLEGENERATION change [NSW] [-204MW AVG] for PE 17:00 to 18:00
5.19 pm	5.25 pm	EA	Darlington Point Energy Storage	25	-1,000	16,600	Restrict load availability due to expected local price. SL.
5.19 pm	5.25 pm	EA	Riverena Energy Storage	65	-1,000	16,600	Restrict load availability due to expected local price. SL.

5.40 pm (101 MW of high-priced capacity was needed)

Submitted time	Time effective	Participant	Station	Capacity rebid (MW)	Price from ($/MWh)	Price to ($/MWh)	Rebid reason
4.41 pm		AGL	Bayswater	125	36	16,600	050 Chg in AEMO PD~50 PD DISPATCHABLE GENERATION change [NSW] [-204MW AVG] for PE 17:00 to 18:00
5.29 pm	5.35 pm	AGL	Bayswater	150	-45	>5,000	010 Unexpected/plant limits~Constraint management - NRM_NSW1_VIC1

5.45 pm (126 MW of high-priced capacity was needed)

Submitted time	Time effective	Participant	Station	Capacity rebid (MW)	Price from ($/MWh)	Price to ($/MWh)	Rebid reason
4.41 pm		AGL	Bayswater	125	36	16,600	050 Chg in AEMO PD~50 PD DISPATCHABLE GENERATION change [NSW] [-204MW AVG] for PE 17:00 to 18:00
5.29 pm	5.35 pm	AGL	Bayswater	150	-45	>5,000	010 Unexpected/plant limits~Constraint management - NRM_NSW1_VIC1

5.50 pm (65 MW of high-priced capacity was needed)

Submitted time	Time effective	Participant	Station	Capacity rebid (MW)	Price from ($/MWh)	Price to ($/MWh)	Rebid reason
4.41 pm		AGL	Bayswater	125	36	16,600	050 Chg in AEMO PD~50 PD DISPATCHABLEGENERATION change [NSW] [-204MW AVG] for PE 17:00 to 18:00
5.29 pm	5.35 pm	AGL	Bayswater	150	-45	>5,000	010 Unexpected/plant limits~Constraint management - NRM_NSW1_VIC1

5.55 pm (88 MW of high-priced capacity was needed)

Submitted time	Time effective	Participant	Station	Capacity rebid (MW)	Price from ($/MWh)	Price to ($/MWh)	Rebid reason
4.41 pm		AGL	Bayswater	125	36	16,600	050 Chg in AEMO PD~50 PD DISPATCHABLE GENERATION change [NSW] [-204MW AVG] for PE 17:00 to 18:00
5.29 pm	5.35 pm	AGL	Bayswater	150	-45	>5,000	010 Unexpected/plant limits~Constraint management - NRM_NSW1_VIC1

6 pm (199 MW of high-priced capacity was needed)

Submitted time	Time effective	Participant	Station	Capacity rebid (MW)	Price from ($/MWh)	Price to ($/MWh)	Rebid reason
4.41 pm		AGL	Bayswater	125	36	16,600	050 Chg in AEMO PD~50 PD DISPATCHABLE GENERATION change [NSW] [-204MW AVG] for PE 17:00 to 18:00
5.52 pm	6.00 pm	AGL	Bayswater	135	36	16,600	040 Chg in AEMO DISP~45 Price change vs PD NSW $14,100

6.10 pm (143 MW of high-priced capacity was needed)

Submitted time	Time effective	Participant	Station	Capacity rebid (MW)	Price from ($/MWh)	Price to ($/MWh)	Rebid reason
2.22 pm		AGL	Broken Hill Solar Plant	-27	-1,000	N/A	010 Unexpected/plant limits~106 Aux/Plant failure
5.52 pm	6.00 pm	AGL	Bayswater	590	36	16,600	040 Chg in AEMO DISP~45 Price change vs PD NSW $14,100

6.15 pm (51 MW of high-priced capacity was needed)

Submitted time	Time effective	Participant	Station	Capacity rebid (MW)	Price from ($/MWh)	Price to ($/MWh)	Rebid reason
2.22 pm		AGL	Broken Hill Solar Plant	-27	-1,000	N/A	010 Unexpected/plant limits~106 Aux/Plant failure
5.29 pm		AGL	Bayswater	150	-45	14,100	010 Unexpected/plant limits~Constraint management - NRM_NSW1_VIC1
5.52 pm	6.00 pm	AGL	Bayswater	590	36	16,600	040 Chg in AEMO DISP~45 Price change vs PD NSW $14,100

6.20 pm (36 MW of high-priced capacity was needed)

Submitted time	Time effective	Participant	Station	Capacity rebid (MW)	Price from ($/MWh)	Price to ($/MWh)	Rebid reason
2.22 pm		AGL	Broken Hill Solar Plant	-27	-1,000	N/A	010 Unexpected/plant limits~106 Aux/Plant failure
5.29 pm		AGL	Bayswater	150	-45	>5,000	010 Unexpected/plant limits~Constraint management - NRM_NSW1_VIC1
5.52 pm	6.00 pm	AGL	Bayswater	590	36	16,600	040 Chg in AEMO DISP~45 Price change vs PD NSW $14,100

6.25 pm (21 MW of high-priced capacity was needed)

Submitted time	Time effective	Participant	Station	Capacity rebid (MW)	Price from ($/MWh)	Price to ($/MWh)	Rebid reason
2.22 pm		AGL	Broken Hill Solar Plant	-27	-1,000	N/A	010 Unexpected/plant limits~106 Aux/Plant failure
5.29 pm		AGL	Bayswater	150	-45	>5,000	010 Unexpected/plant limits~Constraint management - NRM_NSW1_VIC1
5.52 pm	6.00 pm	AGL	Bayswater	590	36	16,600	040 Chg in AEMO DISP~45 Price change vs PD NSW $14,100

6.30 pm (62 MW of high-priced capacity was needed)

Submitted time	Time effective	Participant	Station	Capacity rebid (MW)	Price from ($/MWh)	Price to ($/MWh)	Rebid reason
5.29 pm		AGL	Bayswater	150	-45	>5,000	010 Unexpected/plant limits~Constraint management - NRM_NSW1_VIC1
5.52 pm		AGL	Bayswater	590	36	16,600	040 Chg in AEMO DISP~45 Price change vs PD NSW $14,100

Appendix D – Significant rebids, 8 May

These tables list the rebids that contributed to the high prices in the morning, and in the afternoon and evening of 8 May in NSW. Rebids are grouped by participant to avoid repetition.

In the morning

From 6.35 am to 7.50 am, between 27 MW to 202 MW of high-priced capacity was needed to meet demand.

AGL's rebids at Bayswater contributed to all the morning high prices

AGL rebid between 330 MW and 610 MW of capacity at Bayswater from low to high prices for commercial reasons and contributed to all the morning high prices.

Submitted time	Time effective	Participant	Station	Capacity rebid (MW)	Price from ($/MWh)	Price to ($/MWh)	Rebid reason
4.13 am		AGL	Bayswater	465 to 545	<259	16,600	02:32~A~050 Chg in AEMO PD~50 PD available generation decrease nsw average 634MW 06:00 - 08:30
4.43 am		AGL	Bayswater	45 to 155	16,600	36	04:31~A~050 Chg in AEMO PD~50 PD TOTALINTERMITTENTGENERATION + SEMISCHEDULE_CLEAREDMW decrease nsw 146MW PE 06:30
4.49 am		AGL	Bayswater	20 to 25	16,600	36	04:31~A~050 Chg in AEMO PD~50 PD TOTAL INTERMITTENT GENERATION + SEMIS CHEDULE_CLEAREDMW decrease nsw 146MW PE 06:30
7.06 am	7.15 am	AGL	Bayswater	115 to 125	36	16,600	050 Chg in AEMO PD~54 PD price change [NSW] $7933 avg for PE 07:30-08:30

EA's rebids at Mt Piper contributed to nearly all the morning high prices

At 6.18 am, EA rebid 150 MW of capacity at Mt Piper from low to high prices for commercial reasons and contributed to all the morning high prices, except at 7.15 am and 7.45 am when more high-priced capacity was needed than the amount rebid.

Submitted time	Time effective	Participant	Station	Capacity rebid (MW)	Price from ($/MWh)	Price to ($/MWh)	Rebid reason
6.18 am	6.25 am	EA	Mt Piper	150	<282	14,800	Adj bands, mat chg in Avg NSW RRP for HHE 07:00, $12.80k P5 vs $88 P30 at 06:00 SL

In the afternoon and evening

From 3.45 pm to 7.50 pm, between 0 MW and 368 MW of high-priced capacity was needed to meet demand.

AGL's rebids at Bayswater contributed to nearly all the afternoon and evening high prices

AGL rebid up to 800 MW of capacity at Bayswater from low to high prices mainly for commercial reasons.

At 9.42 am and 10.29 am, AGL rebid a large amount of Bayswater's capacity from low prices to prices above $14,100 per MWh. It slightly offset its net position by rebidding some capacity to lower prices in the afternoon. The net impact of these rebids contributed to all the high prices between 3.45 pm and 7.50 pm, except at 5 pm and 5.20 pm to 5.30 pm when more high-priced capacity was needed to meet demand than AGL's net rebid.

Submitted time	Time effective	Participant	Station	Capacity rebid (MW)	Price from ($/MWh)	Price to ($/MWh)	Rebid reason
9.42 am		AGL	Bayswater	65 to 620	<259	>14,100	A 050 Chg in AEMO PD~55 PD (09:31) price change [NSW] $675 avg for PE 14:30-22:30 - SL
10.29 am		AGL	Bayswater	-30 to 305	<259	>14,100	F 040 Chg in contract pos~40 callable contract triggered
1.13 pm		AGL	Bayswater	30	16,600	57	040 Chg in AEMO DISP~44 Price change vs PD [NSW] $281.96 13:15 vs $76.72 30minPD 13:30
2.24 pm		AGL	Bayswater	5 to 50	16,600	-1,000	010 Unexpected/plant limits~101 Milling Limits SL
2.35 pm		AGL	Bayswater	-10 to 45	16,600	<36	040 Chg in AEMO DISP~45 Price change vs PD NSW $15080 5MPD PE 15:30 vs $39.75 30MPD PE 14:30
6.55 pm		AGL	Bayswater	50	<36	14,100	040 Chg in AEMO DISP~Price increase [NSW] 5MD $14100 for DI ending 18:55 vs 30MPD $472.29 for PE 19:00.

Other rebids contributed to some of the afternoon and evening high prices

As the afternoon progressed, Delta removed 660 MW of low-priced capacity offered at Vales Point to reflect the delayed return to service unit 5. It also shifted up to 20 MW from low to high prices to manage load stability. These rebids contributed to high prices over most of the afternoon and evening.

Submitted time	Time effective	Participant	Station	Capacity rebid (MW)	Price from ($/MWh)	Price to ($/MWh)	Rebid reason
7.28 am, 1.09 pm, 4.30 pm		Delta Electricity	Vales Point	-660	<283	N/A	Unit return to service delay
2.56 pm		Delta Electricity	Vales Point	20	-1,000	16,600	Managing loading stability
3.28 pm		Delta Electricity	Vales Point	10	16,000	-1,000	Load adjust to increase in stages to manage plant failure risk

EA's rebids at Mt Piper contributed to half of the afternoon and evening high prices

EA rebid between 130 MW and 200 MW of capacity at Mt Piper from low to high prices for commercial reasons and contributed to half the afternoon and evening high prices. They also added an additional 280 MW of capacity priced at the cap due to cancelling testing.

Submitted time	Time effective	Participant	Station	Capacity rebid (MW)	Price from ($/MWh)	Price to ($/MWh)	Rebid reason
1.29 pm, 7 May		EA	Mt Piper	200 to 330	16,600	< 89	Adj bands - response to D+1 NSW PD - SL
7.42 pm, 7 May		EA	Mt Piper	150 to 480	< 282	16,600	Adj avail and bands, mat chg in NSW RRP for HHE 17:00, $3k vs $14.45k at HHE 19:30 PD run - ROC = 1 for Talla A RTS requirements SL
12.21 pm		EA	Mt Piper	20	16,600	-1,000	Band Adj due to change in NSW RRP at HHE 12:30 - $279 P5 vs $77 P30 SL

Appendix E – Significant rebids, 20 May

These tables list the rebids that contributed to the high prices on 20 May in NSW. Only the 5-minute intervals with a high price and where rebidding contributed to the high price are included.

6.15 pm (40 MW of high-priced capacity was needed)

Submitted time	Time effective	Participant	Station	Capacity rebid (MW)	Price from ($/MWh)	Price to ($/MWh)	Rebid reason
2.24 pm		AGL	Bayswater	160	36	14,100	050 Chg in AEMO PD~50 PD 1401 Demand change [NSW] [+117MW PE 1800]
4.29 pm		AGL	Bayswater	390	<36	16,600	050 Chg in AEMO PD~51 PD 1601 AVAILGEN change [NSW] [+119MW PE 1800]

6.30 pm (3 MW of high-priced capacity was needed)

Submitted time	Time effective	Participant	Station	Capacity rebid (MW)	Price from ($/MWh)	Price to ($/MWh)	Rebid reason
4.29 pm		AGL	Bayswater	390	<36	16,600	050 Chg in AEMO PD~51 PD 1601 AVAILGEN change [NSW] [+119MW PE 1800]

Appendix F – Significant FCAS rebids, 8 May

These tables list the FCAS rebids for lower 6 second FCAS that contributed to the high prices on 8 May in Queensland. Only the 5-minute intervals with a high price and where rebidding contributed to the high price are included.

7.30 am (18 MW of high-priced capacity was needed)

Submitted time	Time effective	Participant	Station	Capacity rebid (MW)	Price from ($/MWh)	Price to ($/MWh)	Rebid reason
7.19 am		Alinta Energy	Braemar A	31	<299	10,300	A Energy 5pd D10815 14492 v 30pd T10830 $158

7.45 am (11 MW of high-priced capacity was needed)

Submitted time	Time effective	Participant	Station	Capacity rebid (MW)	Price from ($/MWh)	Price to ($/MWh)	Rebid reason
7.39 am		CS Energy	Gladstone	12	<50	N/A	Mill schedule management - rebid to match SCADA or expected plant condition in response to AEMO forecast

4.10 pm (1 MW of high-priced capacity was needed)

Submitted time	Time effective	Participant	Station	Capacity rebid (MW)	Price from ($/MWh)	Price to ($/MWh)	Rebid reason
3.58 pm		AGL	Wandoan BESS	25	0	10,000	P Capability Change ENERGY, LOWER5MIN, LOWER60SEC, LOWER6SEC, LOWERREG, RAISEREG
3.57 pm		Bouldercombe Battery Project	Bouldercombe Battery Project	28	4.89	15,000	P Change in forecast SOC
4.02 pm		Bouldercombe Battery Project	Bouldercombe Battery Project	4	15,000	0.39	P Change in forecast SOC