# Electricity Report

AUSTRALIAN ENERGY REGULATOR

# 25 April – 1 May 2021

## Weekly Summary

Weekly volume weighted average (VWA) prices ranged from $36/MWh in Tasmania to $76/MWh in NSW. Q2 2021 quarter to date prices were at least $17/MWh higher across the mainland regions than the same time a year ago.

This week saw a number of generators offline for planned and unplanned outages. In NSW, coal outages saw more than 3,000 MW of low priced capacity not offered into the market. In addition, low wind across the NEM resulted in less capacity offered at low prices. The combination of coal outages and low wind saw elevated prices in the morning and evening peaks.

## Purpose

The AER is required to publish the reasons for significant variations between forecast and actual price and is responsible for monitoring activity and behaviour in the National Electricity Market. The Electricity Report forms an important part of this work. The report contains information on significant price variations, movements in the contract market, together with analysis of spot market outcomes and rebidding behaviour. By monitoring activity in these markets, the AER is able to keep up to date with market conditions and identify compliance issues.

## Spot market prices

Figure 1 shows the spot prices that occurred in each region during the week 25 April to 1 May 2021.

### Figure 1: Spot price by region ($/MWh)

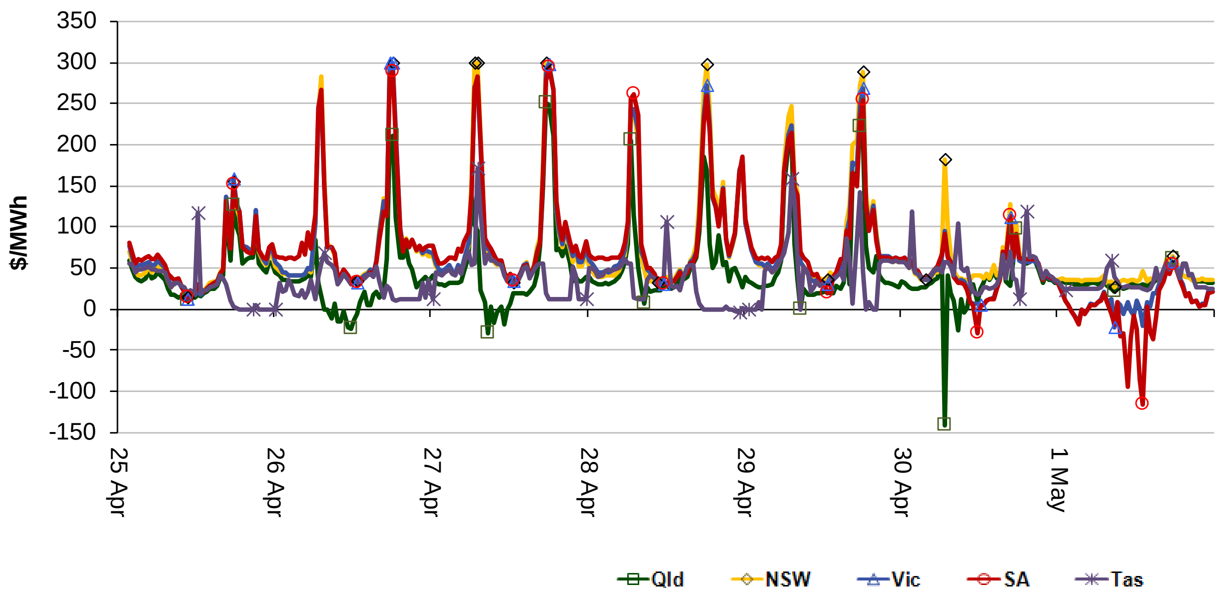


Figure 2 shows the volume weighted average (VWA) prices for the current week (with prices shown in Table 1) and the preceding 12 weeks, as well as the VWA price over the previous 3 financial years.

**Figure 2: Volume weighted average spot price by region ($/MWh)**

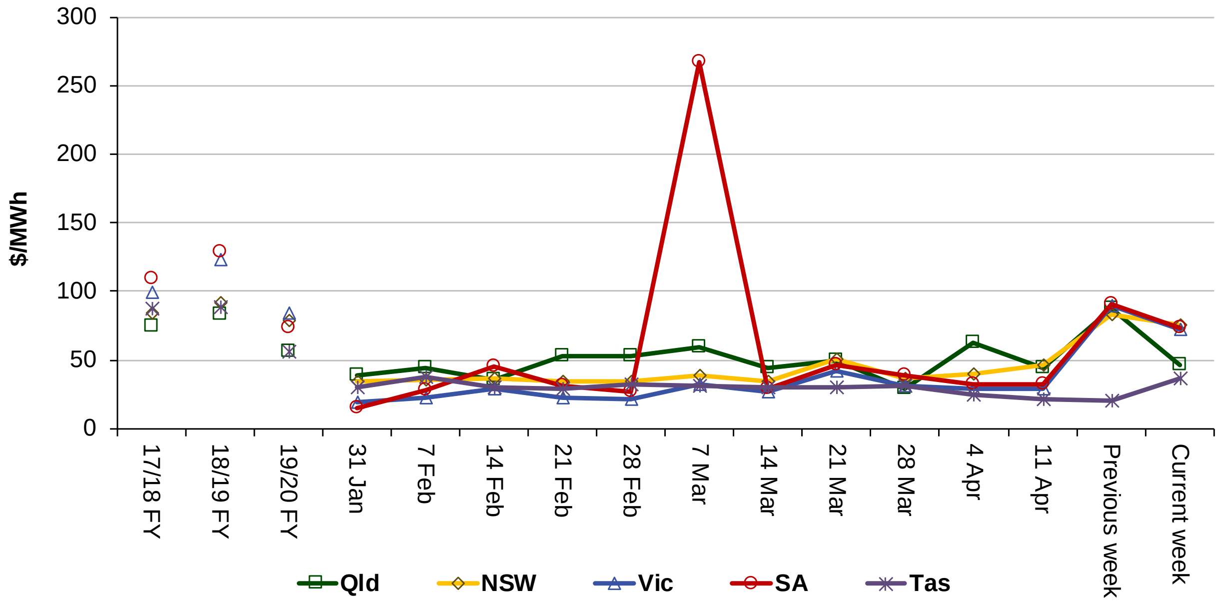



**Table 1: Volume weighted average spot prices by region ($/MWh)**

| Region | Qld | NSW | Vic | SA | Tas |
|---|---|---|---|---|---|
| **Current week** | 46 | 76 | 72 | 73 | 36 |
| **Q2 2020 QTD** | 37 | 41 | 36 | 35 | 23 |
| **Q2 2021 QTD** | 57 | 59 | 53 | 55 | 26 |
| **19-20 financial YTD** | 60 | 86 | 92 | 79 | 60 |
| **20-21 financial YTD** | 44 | 53 | 42 | 46 | 42 |

Longer-term statistics tracking average spot market prices are available on the AER website.

# Spot market price forecast variations

The AER is required under the National Electricity Rules to determine whether there is a significant variation between the forecast spot price published by the Australian Energy Market Operator (AEMO) and the actual spot price and, if there is a variation, state why the AER considers the significant price variation occurred. It is not unusual for there to be significant variations as demand forecasts vary and participants react to changing market conditions. A key focus is whether the actual price differs significantly from the forecast price either four or 12 hours ahead. These timeframes have been chosen as indicative of the time frames within which different technology types may be able to commit (intermediate plant within four hours and slow start plant within 12 hours).

There were 239 trading intervals throughout the week where actual prices varied significantly from forecasts. This compares to the weekly average in 2020 of 233 counts and the average in 2019 of 204. Reasons for the variations for this week are summarised in Table 2. Based on AER analysis, the table summarises (as a percentage) the number of times when the actual price differs significantly from the forecast price four or 12 hours ahead and the major reason for that variation. The reasons are classified as availability (which means that there is a change in the total quantity or price offered for generation), demand forecast inaccuracy, changes to network capability or as a combination of factors (when there is not one dominant reason). An instance where both four and 12 hour ahead forecasts differ significantly from the actual price will be counted as two variations.

### Table 2: Reasons for variations between forecast and actual prices

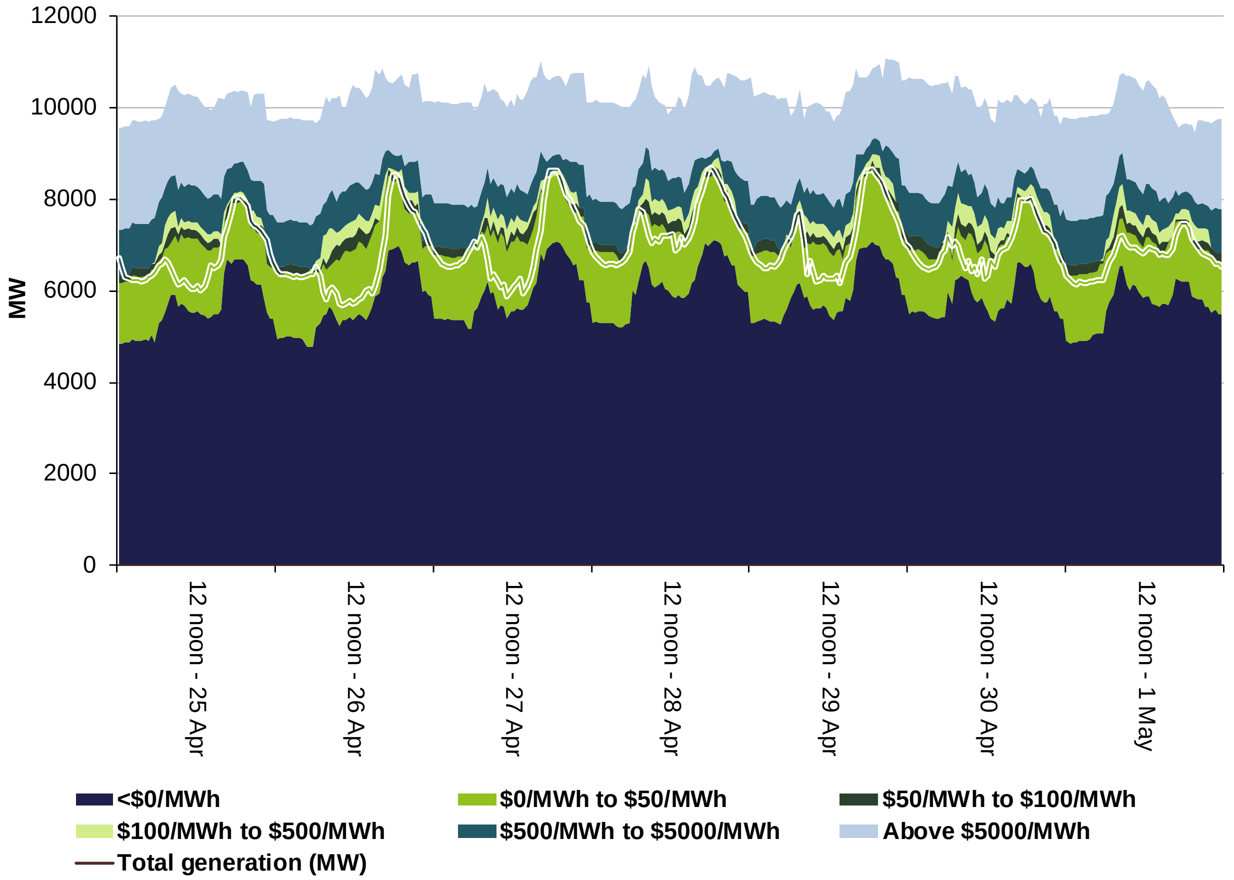
| | Availability | Demand | Network | Combination |
|---|---|---|---|---|
| % of total above forecast | 7 | 38 | 0 | 1 |
| % of total below forecast | 7 | 33 | 0 | 13 |

Note: Due to rounding, the total may not be 100 per cent.

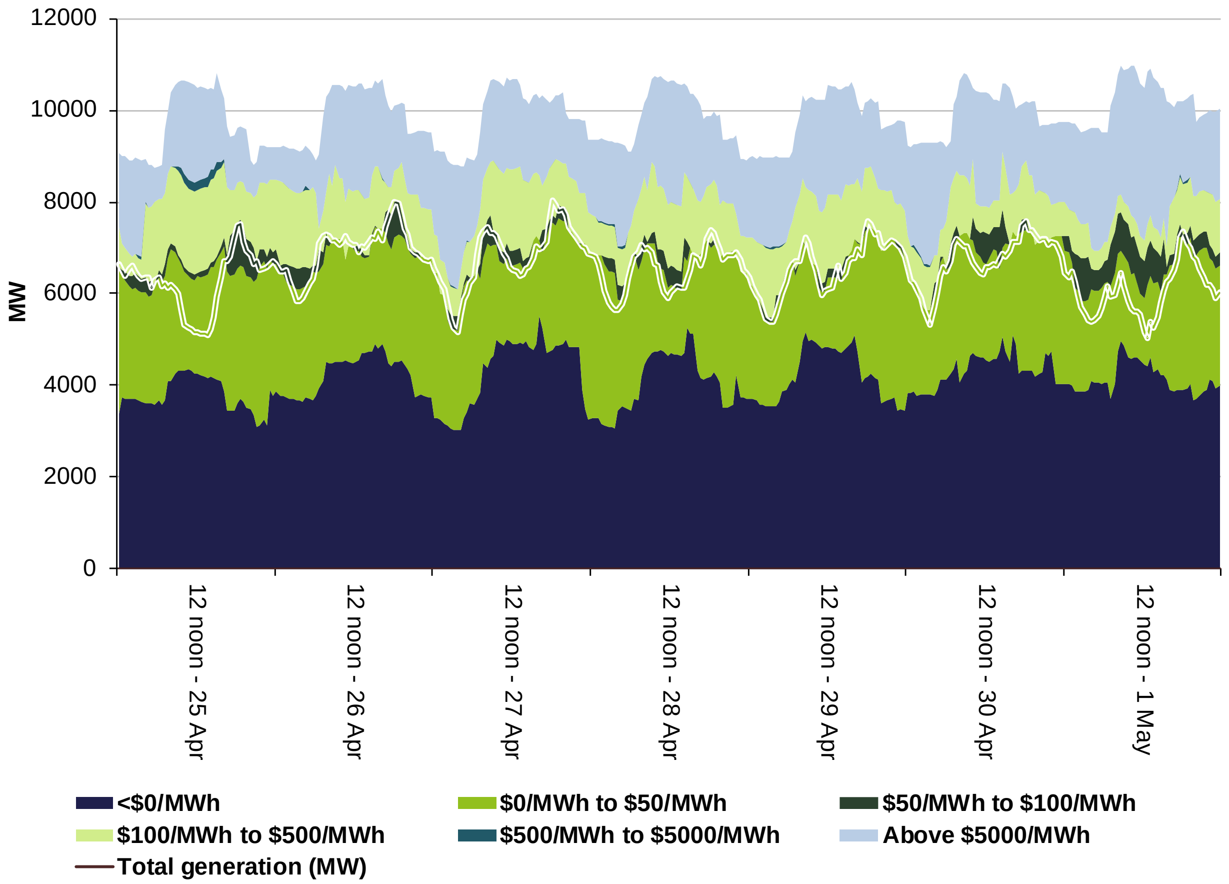
## Generation and bidding patterns

The AER reviews generator bidding as part of its market monitoring to better understand the drivers behind price variations. Figure 3 to Figure 7 show the total generation dispatched and the amounts of capacity offered within certain price bands for each 30 minute trading interval in each region.

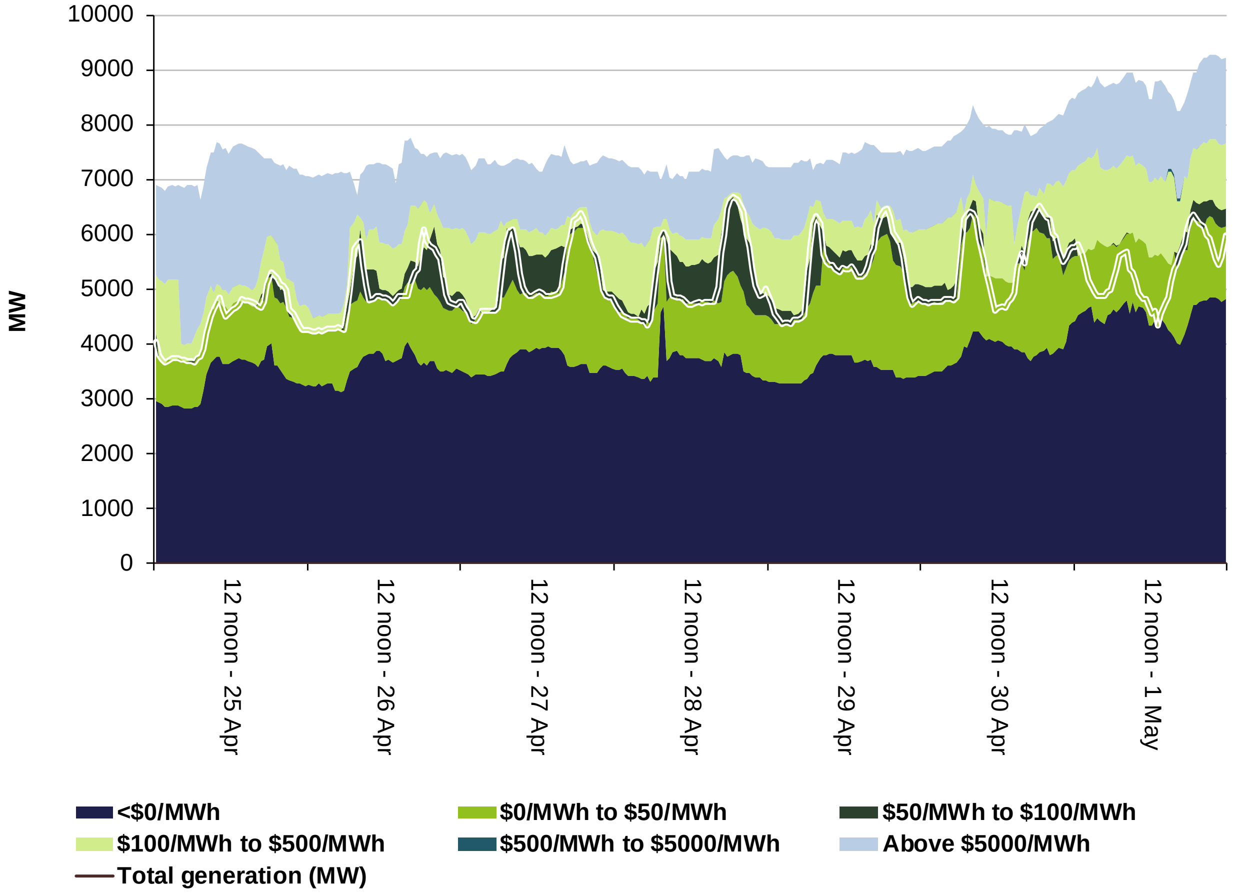
### Figure 3: Queensland generation and bidding patterns



## Figure 4: New South Wales generation and bidding patterns




## Figure 5: Victoria generation and bidding patterns



## Figure 6: South Australia generation and bidding patterns

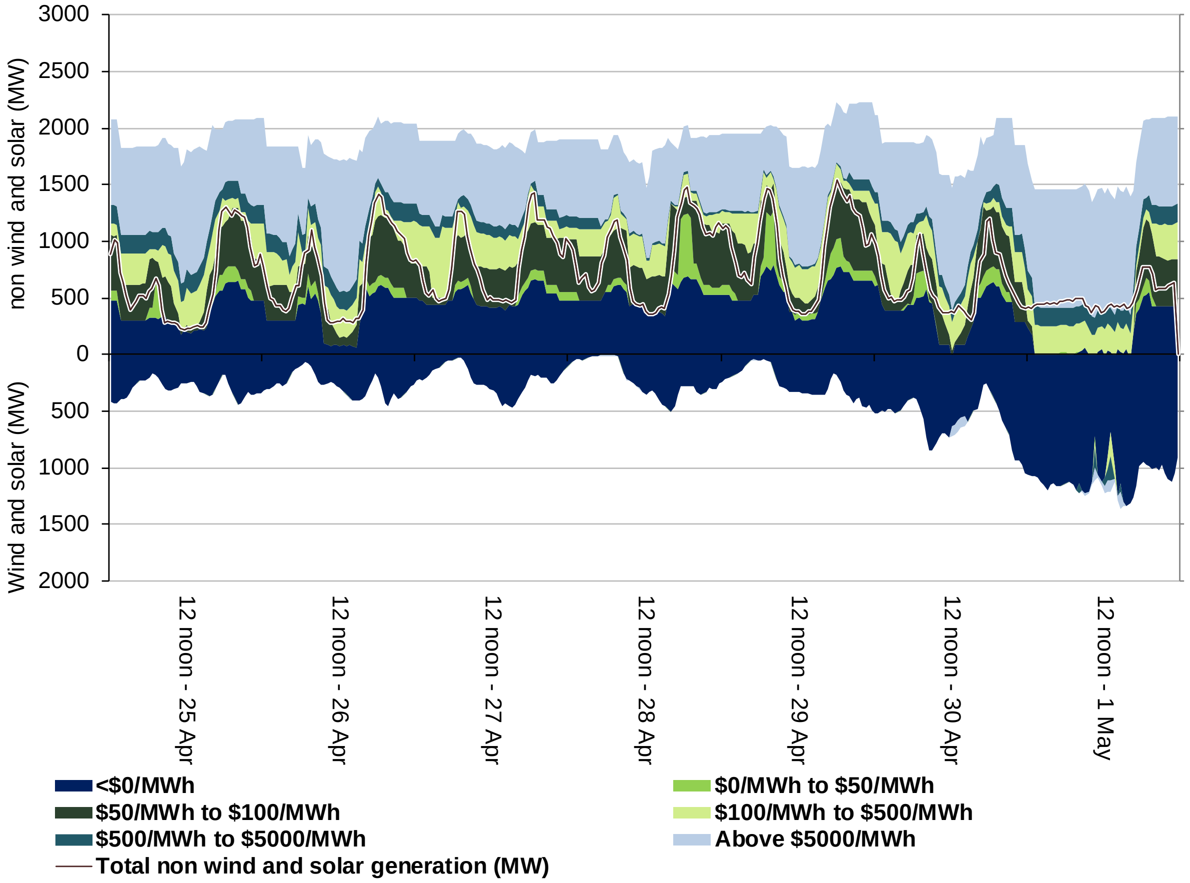
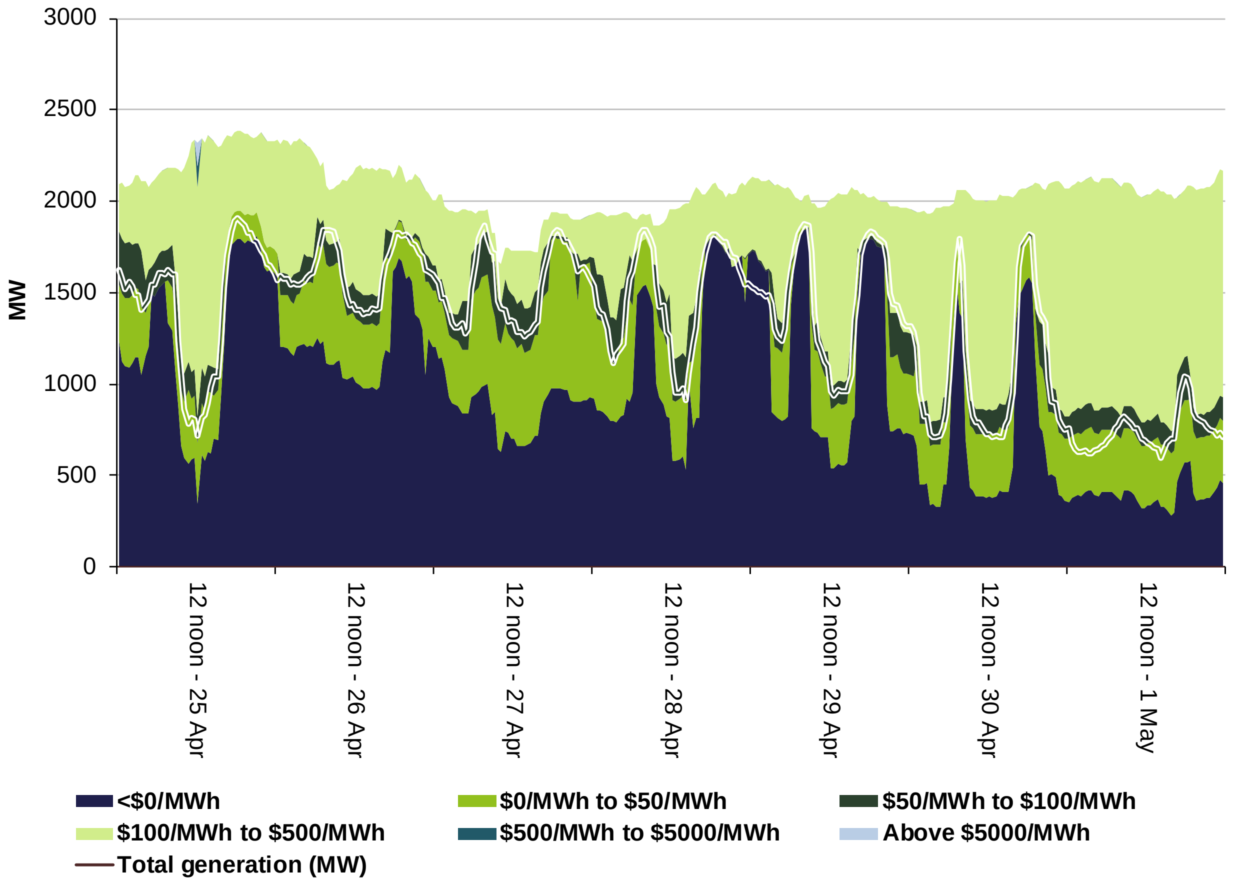


**Figure 7: Tasmania generation and bidding patterns**




## Frequency control ancillary services markets

Frequency control ancillary services (FCAS) are required to maintain the frequency of the power system within the frequency operating standards. Raise and lower regulation services are used to address small fluctuations in frequency, while raise and lower contingency services are used to address larger frequency deviations. There are six contingency services:

- fast services, which arrest a frequency deviation within the first 6 seconds of a contingent event (raise and lower 6 second)
- slow services, which stabilise frequency deviations within 60 seconds of the event (raise and lower 60 second)
- delayed services, which return the frequency to the normal operating band within 5 minutes (raise and lower 5 minute) at which time the five minute dispatch process will take effect.

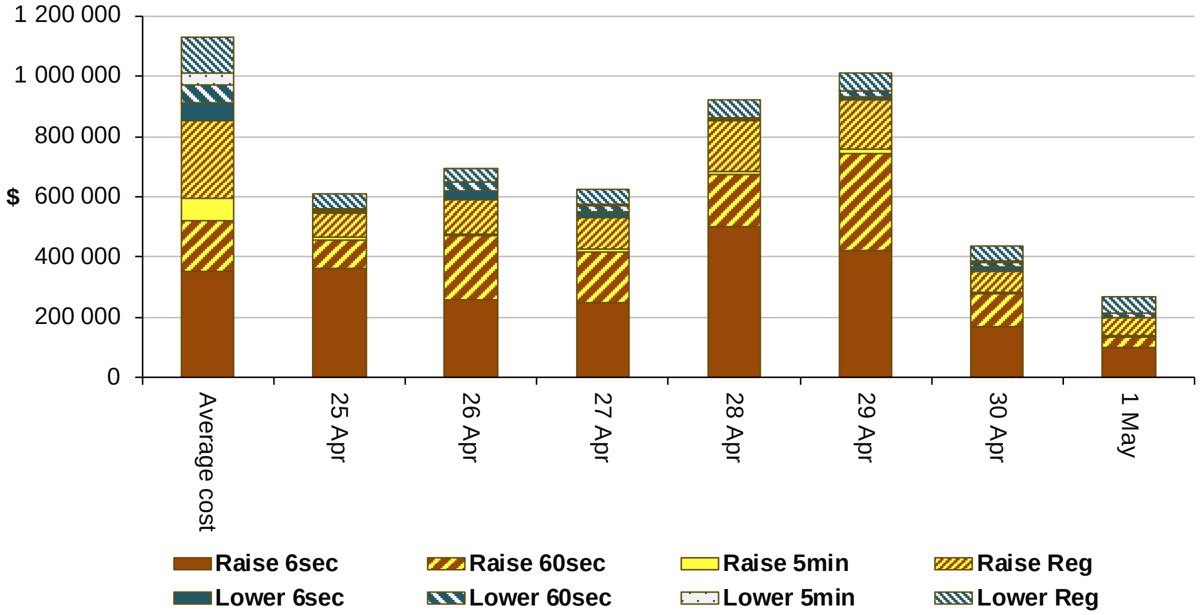
The Electricity Rules stipulate that generators pay for raise contingency services and customers pay for lower contingency services. Regulation services are paid for on a “causer pays” basis determined every four weeks by AEMO.

The total cost of FCAS on the mainland for the week was $4,076,000 or less than 2% of energy turnover on the mainland.

The total cost of FCAS in Tasmania for the week was $486,000 or around 7% of energy turnover in Tasmania.

Figure 8 shows the daily breakdown of cost for each FCAS for the NEM, as well as the average cost since the beginning of the previous financial year.

## Figure 8: Daily frequency control ancillary service cost



# Detailed market analysis of significant price events

## Mainland

There was one occasion where the spot price on the mainland was aligned and greater than 3 times the NSW weekly average price of $76/MWh and above $250/MWh.

**Tuesday, 27 April**

### Table 3: Price, Demand and Availability

| Time | Price ($/MWh) | | | Demand (MW) | | | Availability (MW) | | |
|---|---|---|---|---|---|---|---|---|---|
| | Actual | 4 hr forecast | 12 hr forecast | Actual | 4 hr forecast | 12 hr forecast | Actual | 4 hr forecast | 12 hr forecast |
| 6 pm | 299.99 | 299.99 | 299.99 | 24,470 | 24,029 | 24,012 | 30,209 | 30,288 | 30,116 |

Prices were aligned across the mainland regions and are analysed as one region. Prices were as forecast, 4 and 12 hours prior.

## Queensland

There was one occasion where the spot price in Queensland was below -$100/MWh.

**Friday, 30 April**

### Table 4: Price, Demand and Availability

| Time | Price ($/MWh) | | | Demand (MW) | | | Availability (MW) | | |
|---|---|---|---|---|---|---|---|---|---|
| | Actual | 4 hr forecast | 12 hr forecast | Actual | 4 hr forecast | 12 hr forecast | Actual | 4 hr forecast | 12 hr forecast |
| 7 am | -140.86 | 63.73 | 55.55 | 6,527 | 6,416 | 6,408 | 10,514 | 10,498 | 10,505 |

Demand was 111 MW higher than forecast and availability was close to forecast, 4 hours prior.

Effective 6.45 am, 250 MW of capacity was rebid to the floor in response to changes in forecast prices. At the same time, the QNI ramping constraint reduced flows across the interconnector by 193 MW. As a result, the price fell to -$1,000/MWh for one dispatch interval. In response effective 6.50 am, nearly 1,000 MW of capacity was rebid -$1,000/MWh to above $155/MWh and prices returned to between $26/MWh to $39/MWh for the remainder of the trading interval.

## New South Wales, Victoria and South Australia

There were 9 occasions where the spot price across NSW, Victoria and South Australia was aligned and greater than 3 times the NSW weekly average price of $76/MWh and above $250/MWh. In these instances, prices across NSW, Victoria and South Australia were analysed as one region.

### Monday, 26 April

### Table 5: Price, Demand and Availability

| Time | Price ($/MWh) | | | Demand (MW) | | | Availability (MW) | | |
|---|---|---|---|---|---|---|---|---|---|
| | Actual | 4 hr forecast | 12 hr forecast | Actual | 4 hr forecast | 12 hr forecast | Actual | 4 hr forecast | 12 hr forecast |
| 7.30 am | 284.03 | 296.62 | 262.54 | 14,938 | 14,359 | 14,408 | 18,612 | 18,996 | 19,199 |
| 6 pm | 298.28 | 299.99 | 299.99 | 16,972 | 16,527 | 16,744 | 19,781 | 20,062 | 20,021 |
| 6.30 pm | 298.87 | 299.99 | 299.99 | 17,329 | 16,945 | 17,177 | 19,846 | 20,112 | 20,186 |

Prices were close to forecast.

### Tuesday, 27 April

### Table 6: Price, Demand and Availability

| Time | Price ($/MWh) | | | Demand (MW) | | | Availability (MW) | | |
|---|---|---|---|---|---|---|---|---|---|
| | Actual | 4 hr forecast | 12 hr forecast | Actual | 4 hr forecast | 12 hr forecast | Actual | 4 hr forecast | 12 hr forecast |
| 7 am | 299.99 | 299.99 | 199.56 | 14,841 | 14,331 | 14,363 | 18,275 | 18,373 | 18,479 |
| 7.30 am | 299.99 | 217.3 | 141.27 | 15,389 | 14,740 | 14,775 | 18,842 | 19,012 | 19,116 |
| 6.30 pm | 299.79 | 299.99 | 299.99 | 17,462 | 17,053 | 17,100 | 19,695 | 19,764 | 19,570 |
| 7 pm | 267.4 | 299.99 | 299.99 | 17,299 | 16,939 | 16,959 | 19,834 | 19,935 | 19,714 |

For the 7 am, 6.30 pm and 7 pm prices were as forecast, 4 and 12 hours prior.

For the 7.30 am trading interval, collectively demand was 649 MW higher than forecast and availability was 170 MW lower than forecast, 4 hours prior. Lower than forecast availability was due to 248 MW of capacity price below $35/MWh across Mt Piper and Colongra rebid unavailable for plant reasons. Higher than forecast demand and lower than forecast availability of low priced generation resulted in prices above forecast for the entire trading interval.

### Wednesday, 28 April

### Table 7: Price, Demand and Availability

| Time | Price ($/MWh) | | | Demand (MW) | | | Availability (MW) | | |
|---|---|---|---|---|---|---|---|---|---|
| | Actual | 4 hr forecast | 12 hr forecast | Actual | 4 hr forecast | 12 hr forecast | Actual | 4 hr forecast | 12 hr forecast |
| 7 am | 243.02 | 285.18 | 122.87 | 15,002 | 14,437 | 14,388 | 18,269 | 18,106 | 18,336 |
| 7.30 am | 238.50 | 84.95 | 123.04 | 15,631 | 14,897 | 14,954 | 18,705 | 18,636 | 18,828 |
| 6.30 pm | 297.98 | 299.99 | 299.99 | 17,283 | 17,069 | 17,255 | 19,623 | 19,648 | 19,763 |

The 7 am and 6.30 pm prices were close to forecast 4 hours ahead.

For the 7.30 am trading interval, only prices in South Australia exceeded our reporting threshold with a spot price of $260.73/MWh. Collectively, demand was 734 MW higher than forecast and availability was 69 MW higher than forecast, 4 hours prior. Throughout the trading interval, demand increased by more than 460 MW and resulted in prices between $245/MWh and $322/MWh.

### Thursday, 29 April

### Table 8: Price, Demand and Availability

| Time | Price ($/MWh) | | | Demand (MW) | | | Availability (MW) | | |
|---|---|---|---|---|---|---|---|---|---|
| | Actual | 4 hr forecast | 12 hr forecast | Actual | 4 hr forecast | 12 hr forecast | Actual | 4 hr forecast | 12 hr forecast |
| 6.30 pm | 289.25 | 299.99 | 299.99 | 17,315 | 16,901 | 17,034 | 20,131 | 20,025 | 19,919 |

Prices were as forecast.

## New South Wales

There were 2 occasions where the spot price in NSW was greater than 3 times the weekly average price of $76/MWh and above $250/MWh.

### Wednesday, 28 April

### Table 9: Price, Demand and Availability

| Time | Price ($/MWh) | | | Demand (MW) | | | Availability (MW) | | |
|---|---|---|---|---|---|---|---|---|---|
| | Actual | 4 hr forecast | 12 hr forecast | Actual | 4 hr forecast | 12 hr forecast | Actual | 4 hr forecast | 12 hr forecast |
| 6 pm | 261.96 | 299.99 | 299.99 | 9,102 | 9,099 | 9,115 | 9,866 | 10,243 | 10,152 |

Price was close to forecast.

### Thursday, 29 April

### Table 10: Price, Demand and Availability

| Time | Price ($/MWh) | | | Demand (MW) | | | Availability (MW) | | |
|---|---|---|---|---|---|---|---|---|---|
| | Actual | 4 hr forecast | 12 hr forecast | Actual | 4 hr forecast | 12 hr forecast | Actual | 4 hr forecast | 12 hr forecast |
| 6 pm | 272.62 | 299.99 | 299.99 | 9,221 | 9,050 | 9,119 | 10,103 | 10,189 | 10,148 |

Price was close to forecast.

## South Australia

There was one occasion where the spot price was below -$100/MWh.

### Saturday, 1 May

### Table 11: Price, Demand and Availability

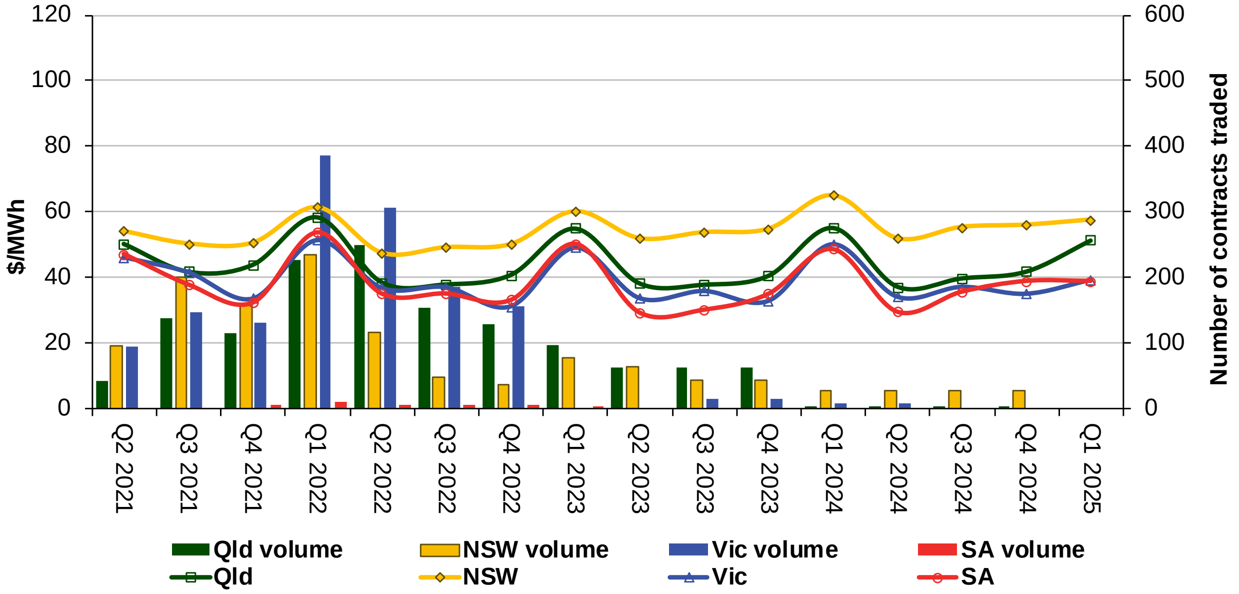
| Time | Price ($/MWh) | | | Demand (MW) | | | Availability (MW) | | |
|---|---|---|---|---|---|---|---|---|---|
| | Actual | 4 hr forecast | 12 hr forecast | Actual | 4 hr forecast | 12 hr forecast | Actual | 4 hr forecast | 12 hr forecast |
| 1.30 pm | -116.7 | 7.74 | -386.94 | 830 | 812 | 771 | 2,636 | 2,619 | 2,593 |

Demand and availability were close to forecast, 4 hours prior. At 1.10 pm, wind generation increased by more than 110 MW and with higher priced generation ramp down-constrained, the price fell to -$622/MWh for 5 minutes. In response, effective 1.15 pm, more than 430 MW of capacity was rebid to prices above $0/MWh or out of the market and dispatch prices were above -$45/MWh for the remainder of the trading interval.

## Financial markets

Figure 9 shows for all mainland regions the prices for base contracts (and total traded quantities for the week) for each quarter for the next four financial years.

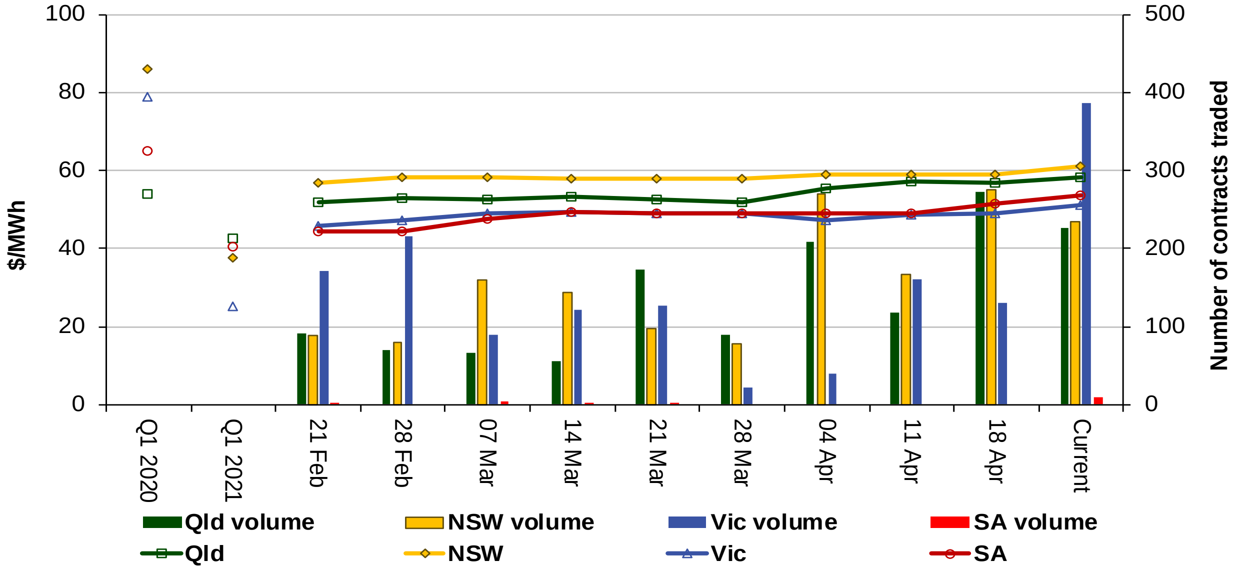
### Figure 9: Quarterly base future prices Q2 2021 – Q1 2025




Source. ASXEnergy.com.au

Figure 10 shows how the price for each regional Q1 2022 base contract has changed over the last 10 weeks (as well as the total number of trades each week). The closing Q1 2021 and Q1 2020 prices are also shown. The AER notes that data for South Australia is less reliable due to very low numbers of trades.

### Figure 10: Price of Q1 2022 base contracts over the past 10 weeks (and the past 2 years)



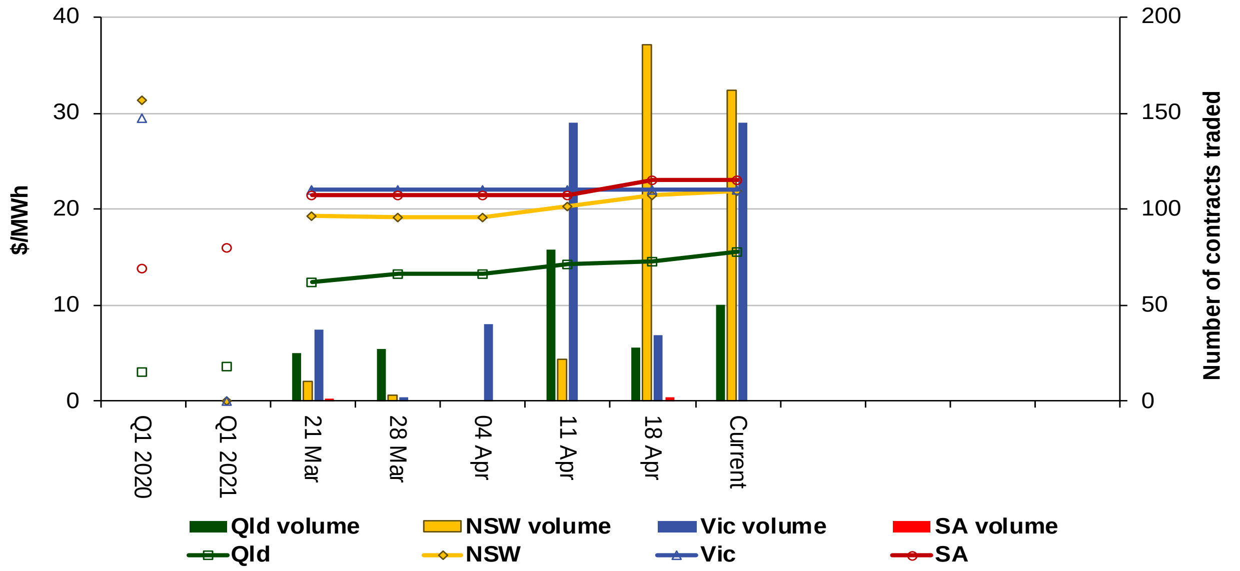

Note. Base contract prices are shown for each of the current week and the previous 9 weeks, with average prices shown for periods 1 and 2 years prior to the current year.

Source. ASXEnergy.com.au

Figure 11 shows how the price for each regional Q1 2022 cap contract has changed over the last 10 weeks (as well as the total number of trades each week). The closing Q1 2021 and Q1 2020 prices are also shown.

Cap contracts for 5 minute settlement (due to commence from Q4 2021) were listed on 22 March 2021. As a result, there's only been 6 weeks of Q1 2022 cap contract trading so far.

### Figure 11: Price of Q1 2022 cap contracts over the past 10 weeks (and the past 2 years)




Source. ASXEnergy.com.au

Prices of other financial products (including longer-term price trends) are available in the [Industry Statistics] section of our website.

**Australian Energy Regulator**
**May 2021**