AUSTRALIAN ENERGY REGULATOR

# 11 – 17 October 2020

## Weekly Summary

Weekly volume weighted average (VWA) prices ranged from $37/MWh in Queensland to $50/MWh in New South Wales. Q4 2020 quarter to date prices remained around half the levels seen a year ago.

Constraints limiting solar dispatch in Queensland saw prices vary from forecast throughout the week, including spot prices exceeding $2000/MWh in Queensland on 13 October.

## 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 11 to 17 October 2020.

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

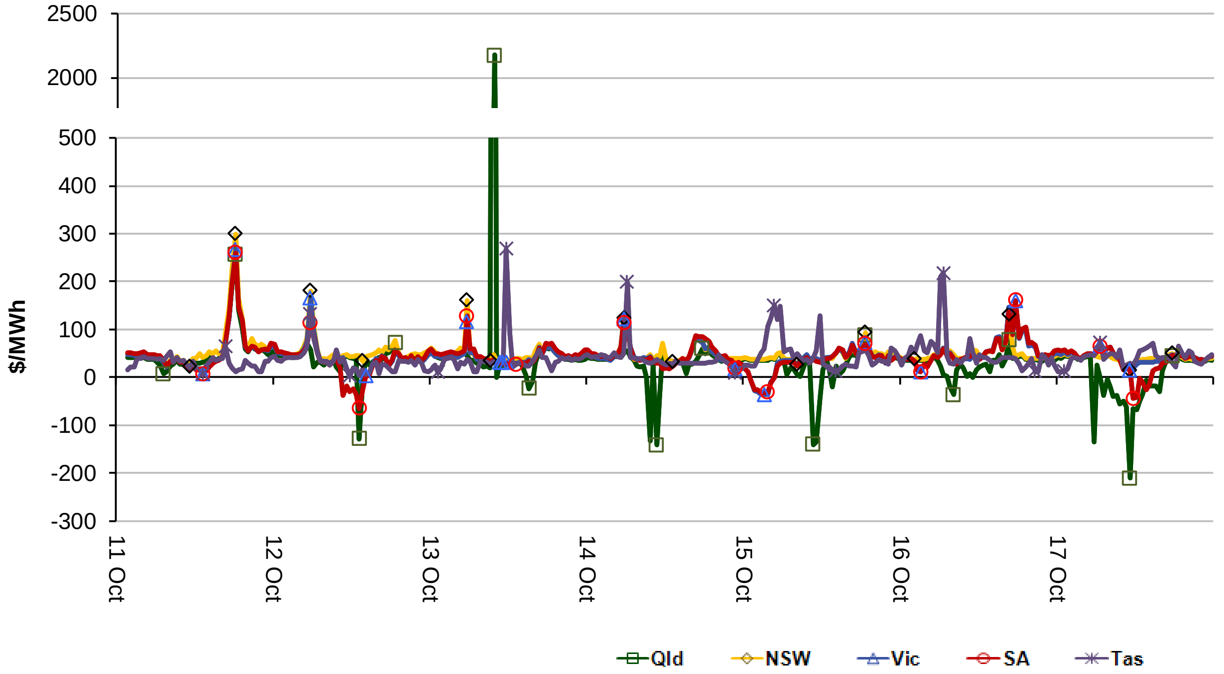
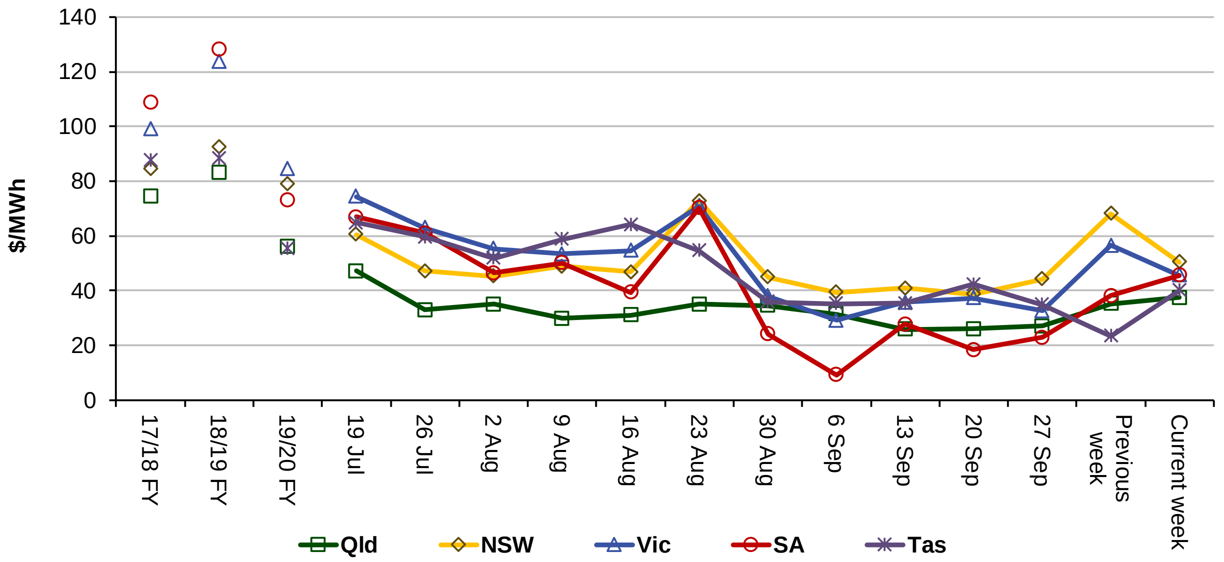


Figure 2 shows the volume weighted average (VWA) prices for the current week (with prices shown in Table 1) and the preceding 12 weeks, as well as the VWA price over the previous 3 financial years.

### 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 | 37 | 50 | 46 | 46 | 40 |
| Q4 2019 (QTD) | 73 | 109 | 113 | 76 | 119 |
| Q4 2020 (QTD) | 34 | 55 | 44 | 35 | 30 |
| 18-19 financial YTD | 67 | 90 | 104 | 81 | 76 |
| 19-20 financial YTD | 34 | 49 | 53 | 45 | 48 |

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 275 trading intervals throughout the week where actual prices varied significantly from forecasts. This compares to the weekly average in 2019 of 204 counts and the average in 2018 of 199. 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

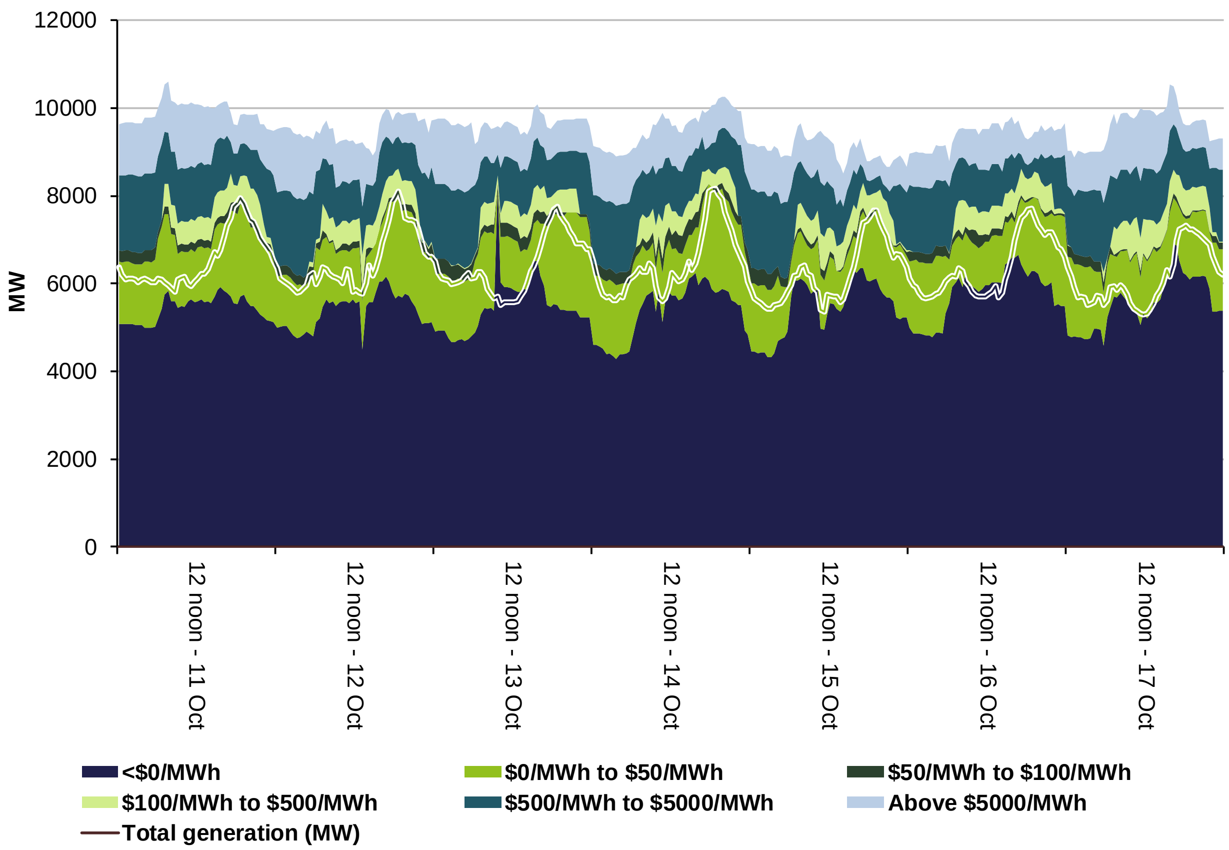
| | Availability | Demand | Network | Combination |
|---|---|---|---|---|
| % of total above forecast | 2 | 25 | 0 | 1 |
| % of total below forecast | 19 | 41 | 0 | 13 |

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

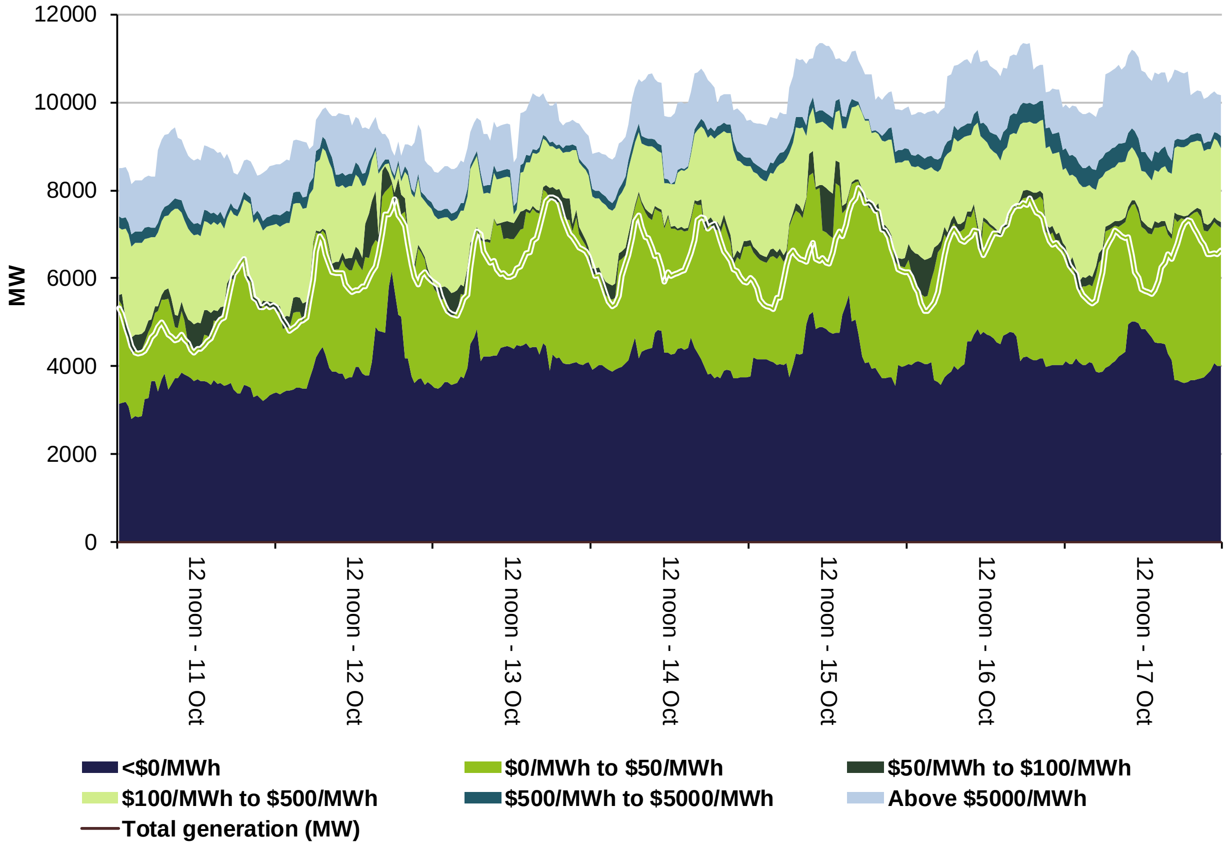
## Generation and bidding patterns

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.

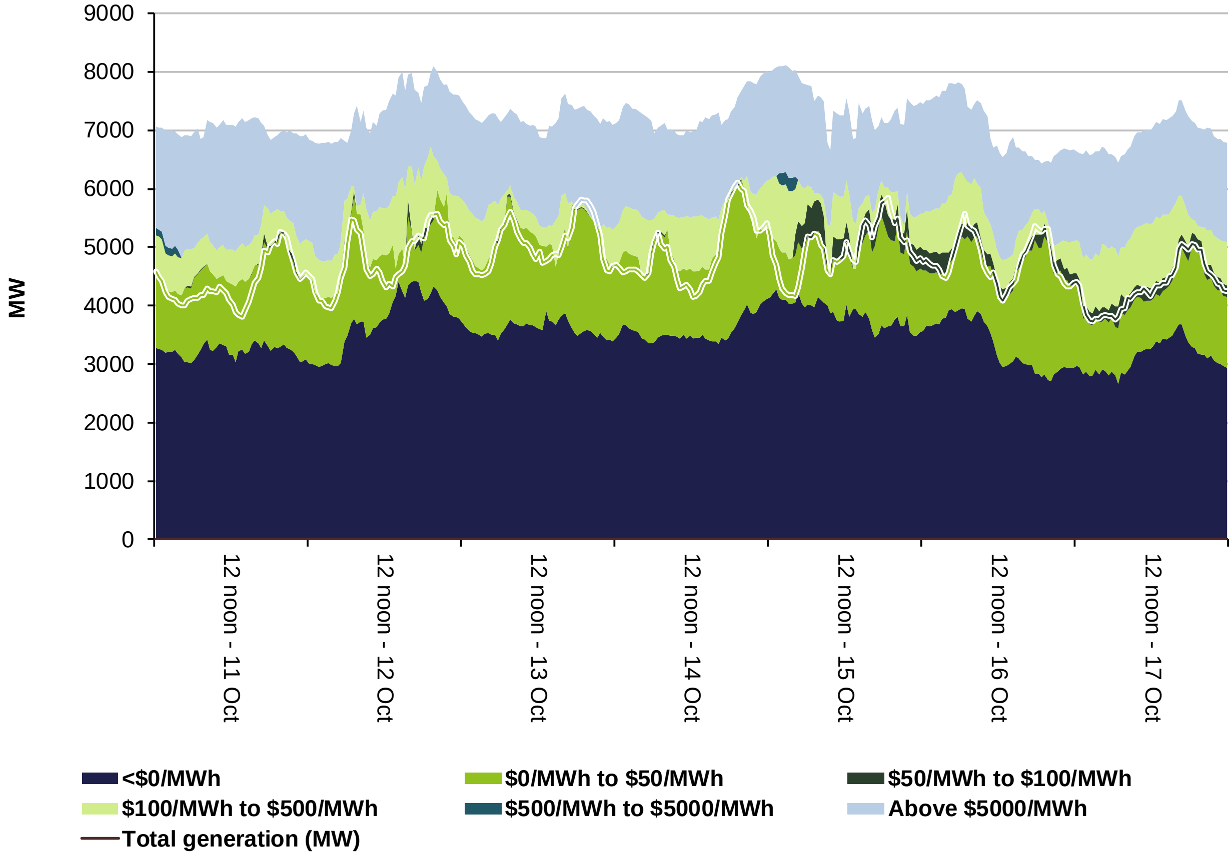
### Figure 3: Queensland generation and bidding patterns



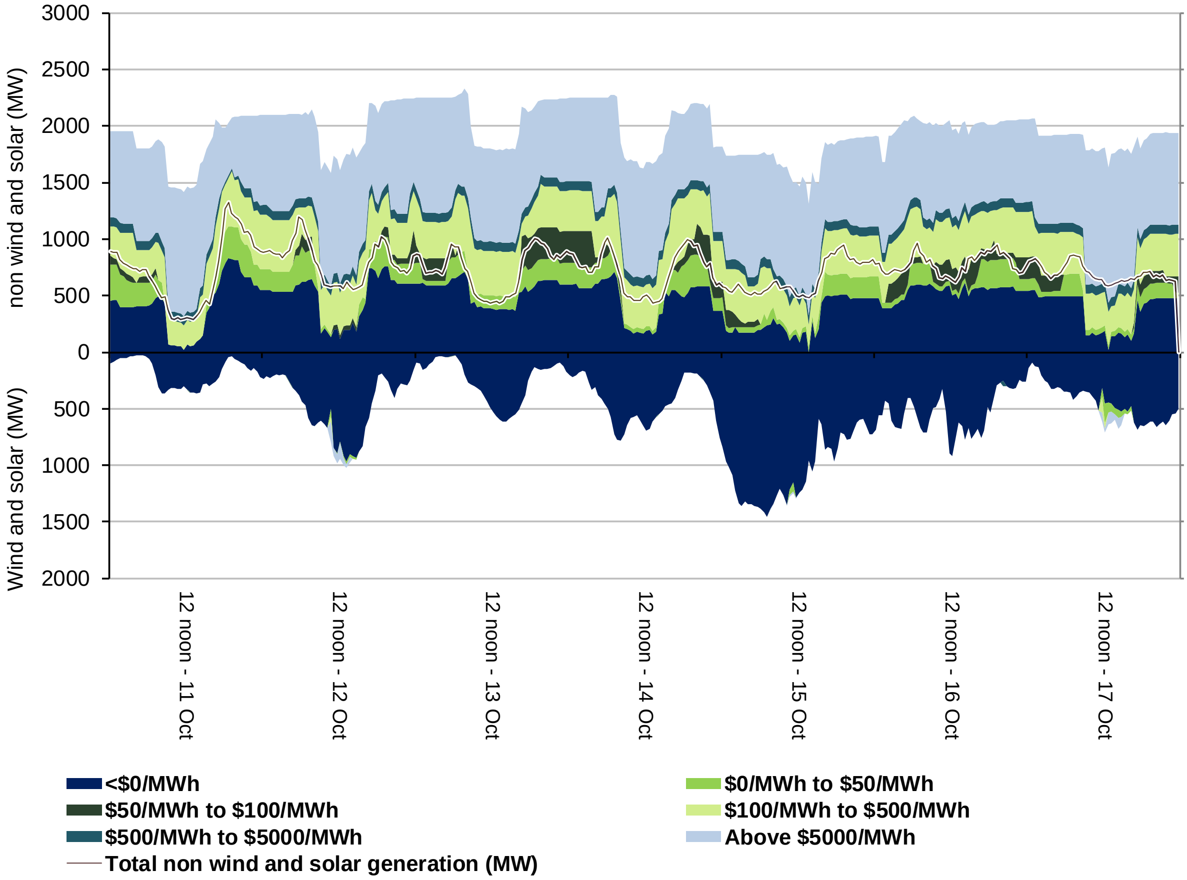
## Figure 4: New South Wales generation and bidding patterns



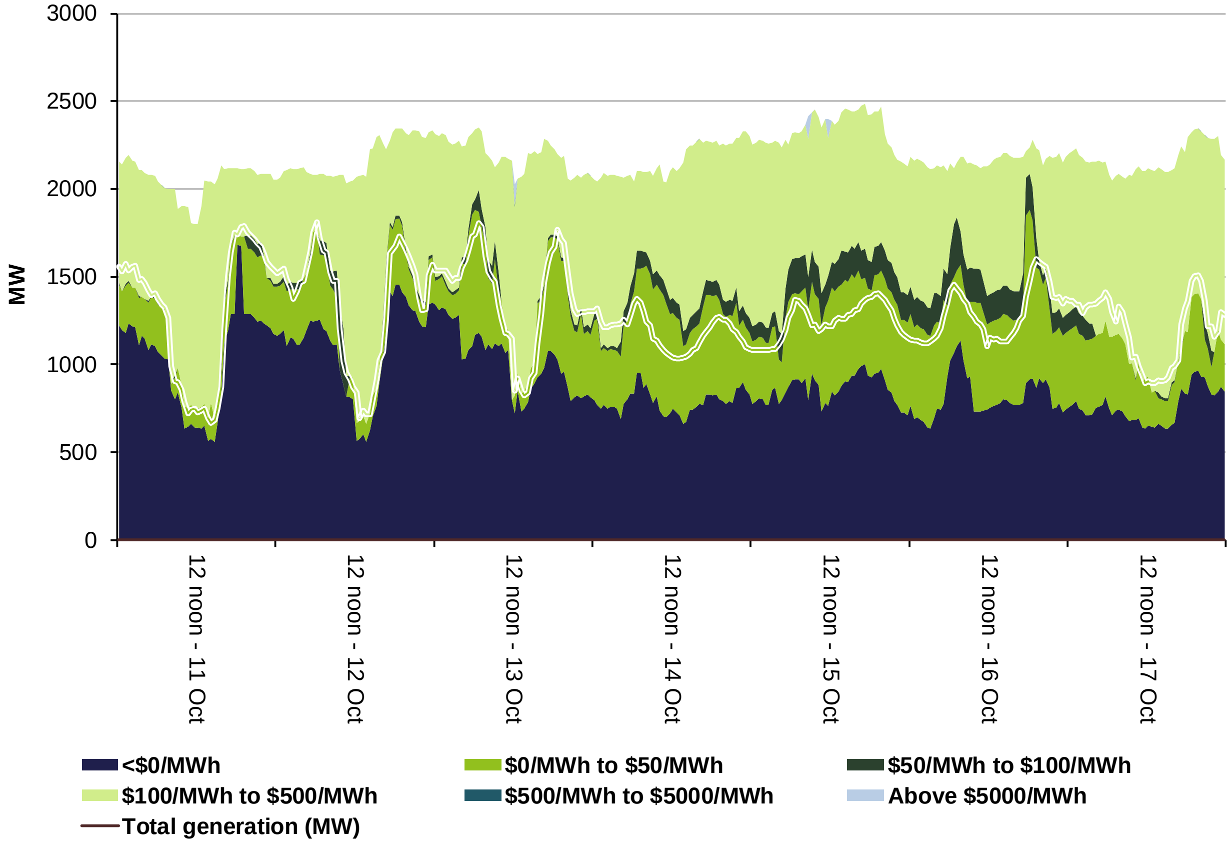

## Figure 5: Victoria generation and bidding patterns



## 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.

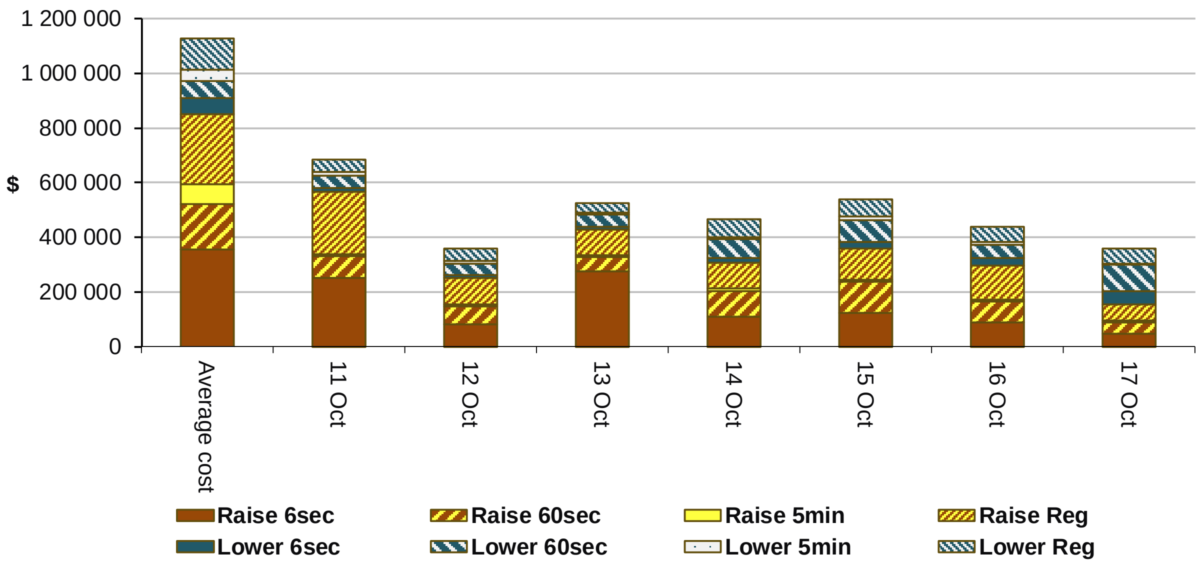
The Electricity Rules stipulate that generators pay for raise contingency services and customers pay for lower contingency services. Regulation services are paid for on a "causer pays" basis determined every four weeks by AEMO.

The total cost of FCAS on the mainland for the week was $2 955 500 or around 2 per cent of energy turnover on the mainland.

The total cost of FCAS in Tasmania for the week was $415 000 or less than 6 per cent 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 Mainland spot price was greater than three times the New South Wales weekly average price of $60/MWh and above $250/MWh. The New South Wales price is used as a proxy for the NEM.

### Sunday, 11 October

### 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 |
| 6.30 pm | 299.93 | 299.99 | 299.99 | 20 652 | 20 393 | 20 352 | 26 939 | 27 170 | 26 957 |

Prices were aligned across mainland regions and were close to forecast.

## Queensland

There was one occasion where the spot price in Queensland was greater than three times the Queensland weekly average price of $37/MWh and above $250/MWh and there were seven occasions where the spot price was below -$100/MWh.

### Monday, 12 October

### 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 |
| 1.30 pm | -128.20 | 33.73 | 33.73 | 5429 | 5162 | 5232 | 9469 | 9099 | 9574 |

Demand was 267 MW higher than forecast, while availability was 370 MW higher than forecast, four hours prior. Higher than forecast availability was due to higher than forecast generation priced below -$900/MWh.

At 1.10 pm, constraints managing system strength in Queensland, which limited the dispatch of several solar farms, stopped binding. This resulted in an additional 350 MW of solar capacity priced at the floor being made available. As a result, the price fell to the floor for one dispatch interval and in response, participants rebid over 1200 MW of capacity from the price floor to higher prices.

## Tuesday, 13 October

### 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 |
| 10 am | 2178.89 | 22.75 | 18.75 | 5078 | 4966 | 4973 | 9821 | 9982 | 10 017 |

Demand was 112 MW higher than forecast while availability was 161 MW lower than forecast, four hours prior. Lower than forecast availability was due to lower than forecast wind and solar generation, and rebids by Yarwun and Oakey which removed over 200 MW of capacity due to plant issues.

At 9.45 am, constraints managing system strength in Queensland bound, limiting the dispatch of several solar farms. As a result, 530 MW of solar capacity, mostly priced below $0/MWh, was made unavailable. This drove the price to reach the price cap for one dispatch interval.

## Wednesday, 14 October

### 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 |
| 10 am | -133.47 | 25.71 | -434.45 | 5400 | 5049 | 4994 | 9859 | 10 078 | 10 147 |
| 11 am | -141.54 | 25.41 | -1000 | 5232 | 4958 | 4942 | 10 119 | 10 133 | 10 192 |

For the 10 am and 11 am trading intervals, demand was between 274 MW and 351 MW higher than forecast, while availability was between 14 MW and 219 MW less than forecast, four hours prior. Lower than forecast availability was due to lower than forecast wind and solar generation and rebids by Yarwun and Coopers Gap Wind Farm removing nearly 70 MW due to plant issues.

At 9.55 am and 10.40 am, constraints managing system strength in Queensland, which limited the dispatch of several solar farms, stopped binding. This resulted in around 250 MW of solar capacity priced at the floor being made available. As a result, the price fell to the floor for one dispatch interval and in response, participants rebid over 670 MW from the price floor to higher prices.

### Thursday, 15 October

### 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 |
| 11 am | -140.52 | -434.45 | 25.41 | 5015 | 4741 | 4834 | 9447 | 9577 | 9705 |
| 11.30 am | -135.28 | -46.89 | 25.41 | 4950 | 4742 | 4836 | 9357 | 9515 | 9662 |

For the 11 am trading interval, demand was 274 MW higher than forecast, while availability was 130 MW less than forecast, four hours prior. Less than forecast availability was due to less than forecast solar and wind generation and a rebid by Mt Stuart removing 138 MW from the price ceiling due to technical issues.

From 10.19 am onwards, Millmerran rebid nearly 100 MW of capacity from the price floor to prices above -$72/MWh due to changes in forecast prices. This led to prices around $25/MWh at the start of the trading interval. At 10.40 am, constraints managing system strength in Queensland stopped binding and limiting dispatch of solar farms. This resulted in an additional 223 MW of solar capacity priced at the floor being made available. As a result, the price fell to the floor for one dispatch interval. In response, participants rebid over 1000 MW of capacity from the price floor to prices above $40/MWh. Prices remained above $25/MWh for the remainder the interval.

For the 11.30 am trading interval, demand was 208 MW higher than forecast, while availability was 158 MW less than forecast, four hours prior. Less than forecast availability was due to less than forecast solar and wind generation. At 11.05 am, constraints managing system strength in Queensland, which limited the dispatch of several solar farms, stopped binding. This resulted in an additional 270 MW of solar capacity priced at the floor being made available. As a result, the price fell to the floor for one dispatch interval and in response, participants rebid over 1000 MW from the price floor to higher prices.

### Saturday, 17 October

### 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 am | -133.92 | 45.74 | 39.77 | 5030 | 5061 | 5056 | 9026 | 8866 | 8817 |
| 11.30 am | -210.39 | -1000 | -1000 | 4345 | 4256 | 4303 | 9986 | 9796 | 9358 |

For the 6 am trading interval, demand was close to forecast while availability was 160 MW higher than forecast, four hours prior. Higher than forecast availability was due to higher than forecast generation, most of which was priced below $0/MWh. At 5.55 am exports from Queensland to New South Wales were reduced by 200 MW. With several generators ramp down constrained, the dispatch price fell to the floor for one dispatch interval.

For the 11.30 am trading interval, demand was 89 MW higher than forecast while availability was 190 MW higher than forecast. Higher than forecast availability was due to higher than forecast generation, most of which was priced below $0/MWh. From 7 am onwards, participants rebid over 400 MW from the price floor to higher prices due to changes in forecasts and plant issues, resulting in the prices above forecast. At 11.20 am, demand fell by 126 MW, resulting in the price falling to the floor as expected for one interval. In response, participants shifted nearly 300 MW from the floor to higher prices.

## Tasmania

There was one occasion where the spot price in Tasmania was greater than three times the Tasmania weekly average price of $40/MWh and above $250/MWh.

**Tuesday, 13 October**

### Table 9: Price, Demand and Availability

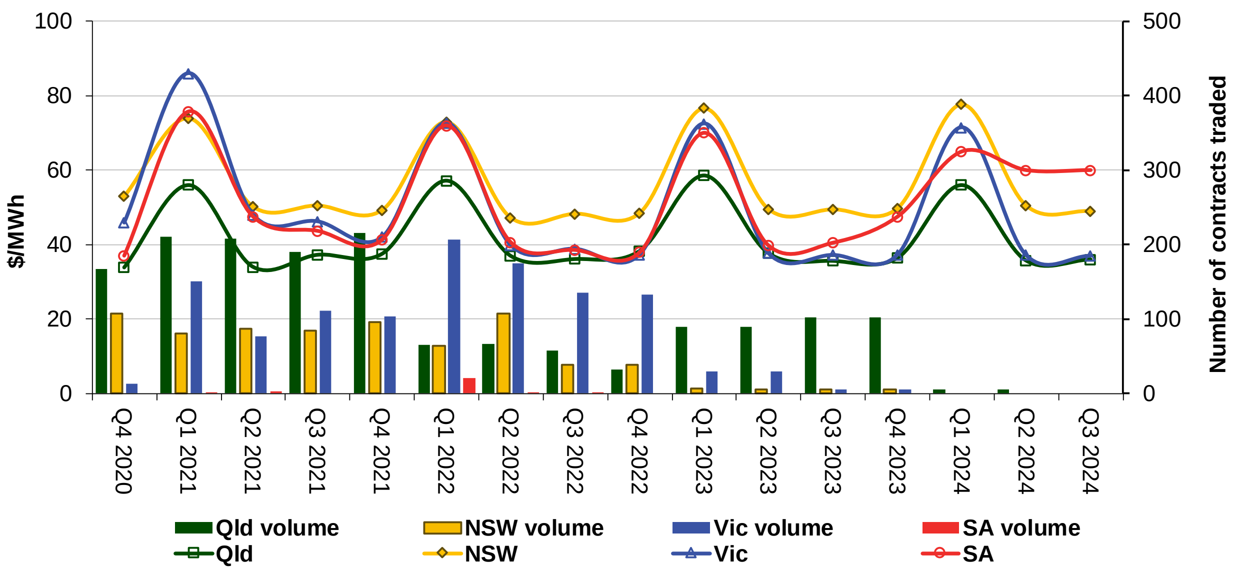
| Time | Price ($/MWh) | | | Demand (MW) | | | Availability (MW) | | |
|---|---|---|---|---|---|---|---|---|---|
| | Actual | 4 hr forecast | 12 hr forecast | Actual | 4 hr forecast | 12 hr forecast | Actual | 4 hr forecast | 12 hr forecast |
| Midday | 267.75 | 16.65 | 11.60 | 942 | 952 | 1051 | 2160 | 2164 | 2158 |

Demand and availability were close to forecast four hours prior. A constraint managing raise 6 second FCAS requirements forced Basslink flows from Tasmania into Victoria throughout the trading interval. These flows were not forecast four hours prior. Additionally, a rebid by HydroTas at Bastyan at 9.29 am shifted 71 MW from prices below $12/MWh to above $400/MWh due to changes in forecast price. As a result, prices remained above $226/MWh for most 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 Q4 2020 – Q3 2024

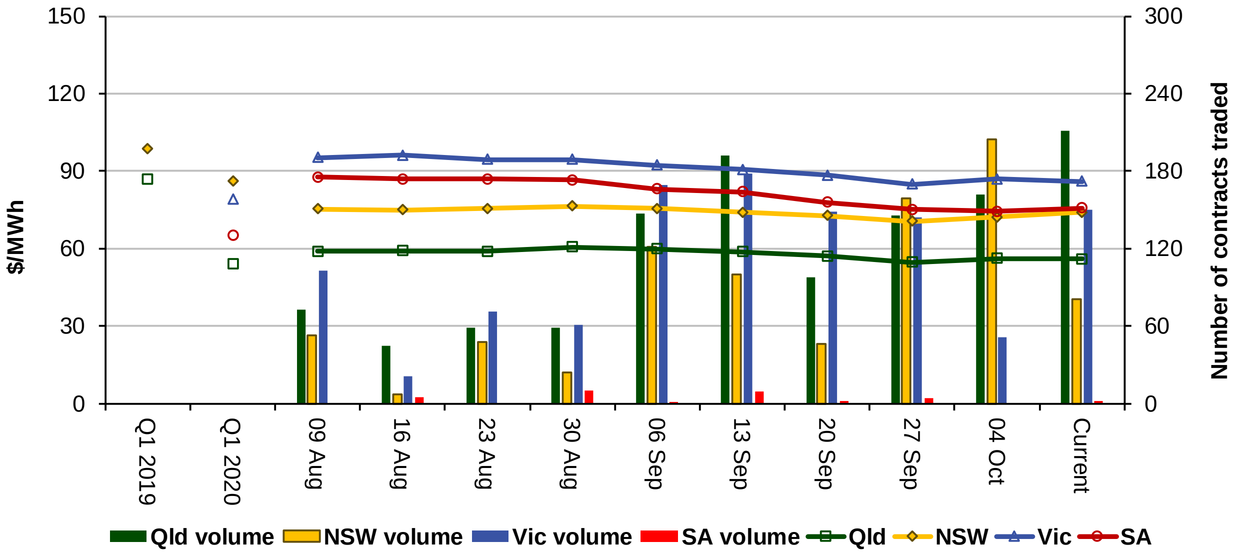



Source. ASXEnergy.com.au

Figure 10 shows how the price for each regional Q1 2021 base contract has changed over the last 10 weeks (as well as the total number of trades each week). The closing Q1 2020 and

Q1 2019 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 2021 base contracts over the past 10 weeks (and the past 2 years)

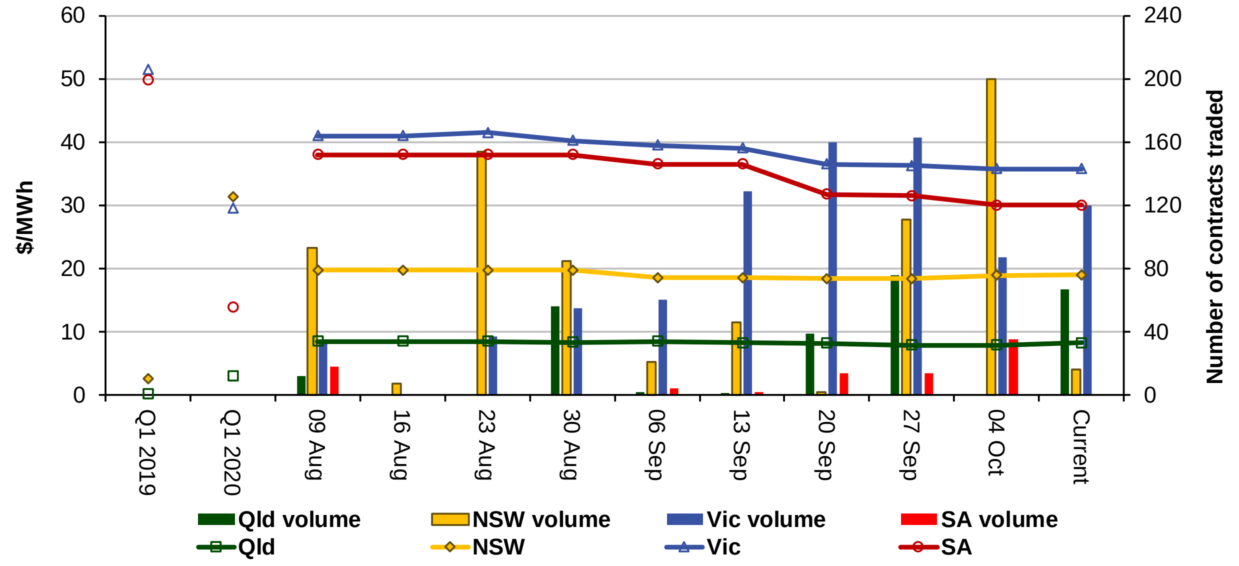



Note. Base contract prices are shown for each of the current week and the previous 9 weeks, with average prices shown for periods 1 and 2 years prior to the current year.

Source. ASXEnergy.com.au

Figure 11 shows how the price for each regional Q1 2021 cap contract has changed over the last 10 weeks (as well as the total number of trades each week). The closing Q1 2020 and Q1 2019 prices are also shown.

### Figure 11: Price of Q1 2021 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**
**November 2020**