Electricity Report

AUSTRALIAN ENERGY REGULATOR

3 – 9 May 2020

Weekly Summary

Prices ranged from $-188/MWh in South Australia to $2483/MWh in Tasmania.

On 4 May, a technical issue at the Loy Yang A generator in Victoria removed around 800 MW of capacity priced above $5000/MWh between the 7 am to 11 am trading intervals but did not result in any significant price events.

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 3 to 9 May 2020.

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

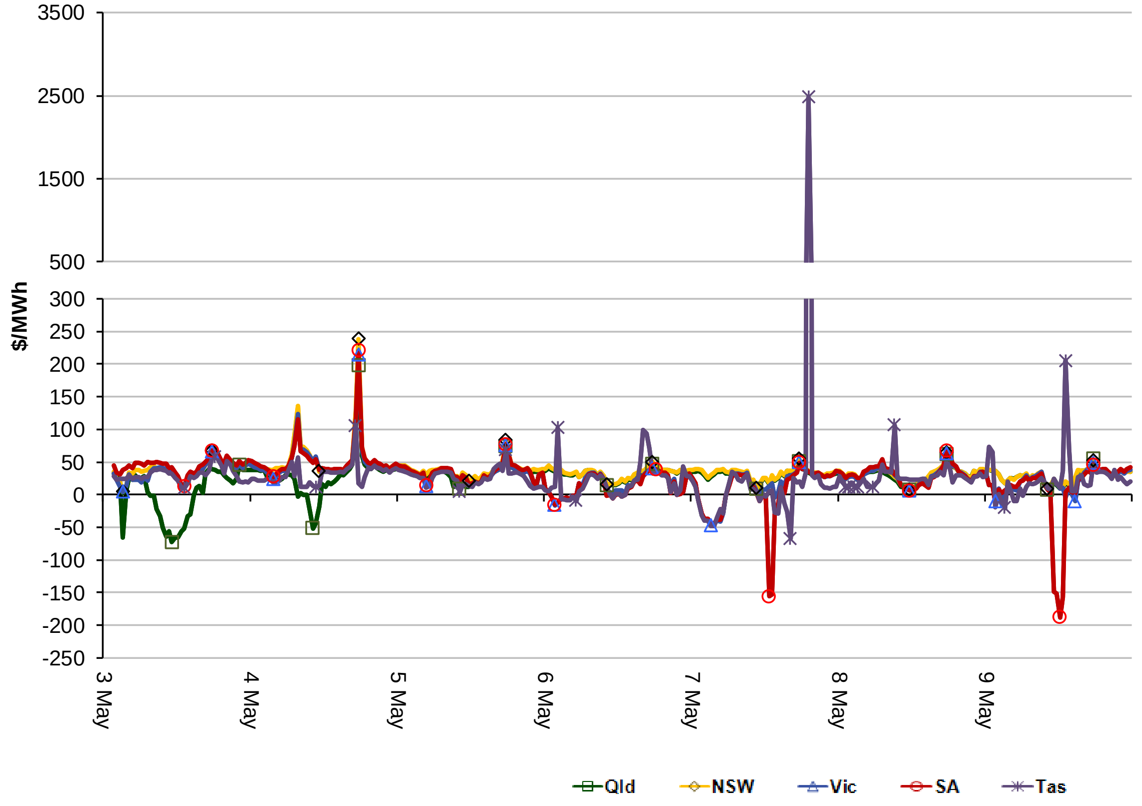


Figure 2 shows the volume weighted average (VWA) prices for the current week (with prices shown in Table 1) and the preceding 12 weeks, as well as the VWA price over the previous 3 financial years.

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

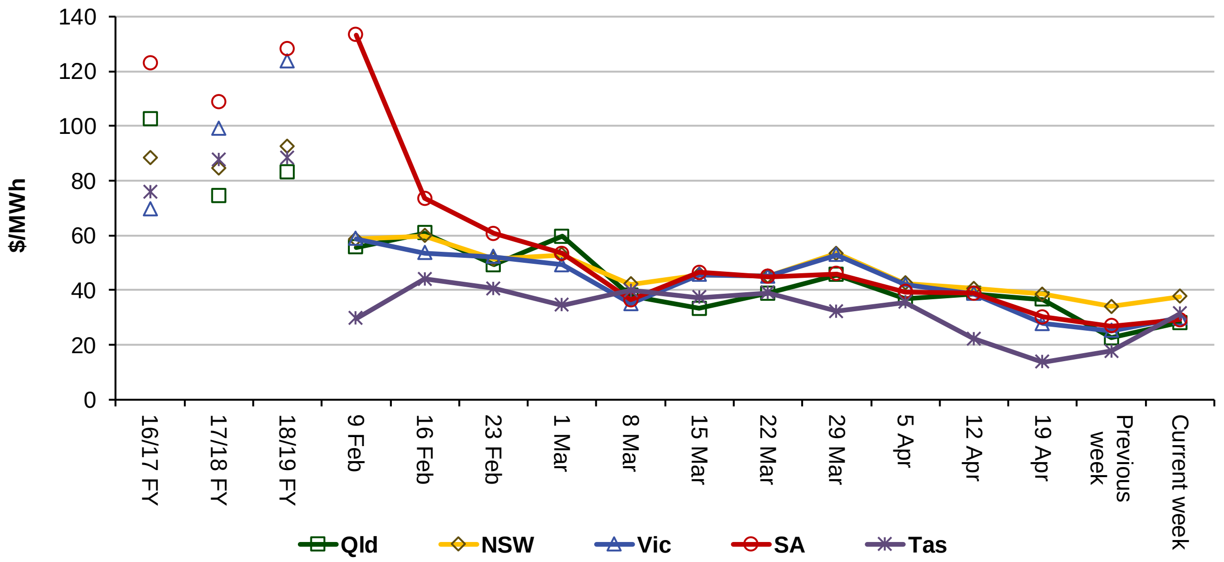


Table 1: Volume weighted average spot prices by region ($/MWh)

Region	Qld	NSW	Vic	SA	Tas
Current week	28	38	30	29	31
Q2 2019 (QTD)	71	80	101	95	106
Q2 2020 (QTD)	34	40	35	34	25
18-19 financial YTD	83	93	128	134	87
19-20 financial YTD	59	84	91	78	59

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 241 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	15	17	0	1
% of total below forecast	10	44	0	12

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

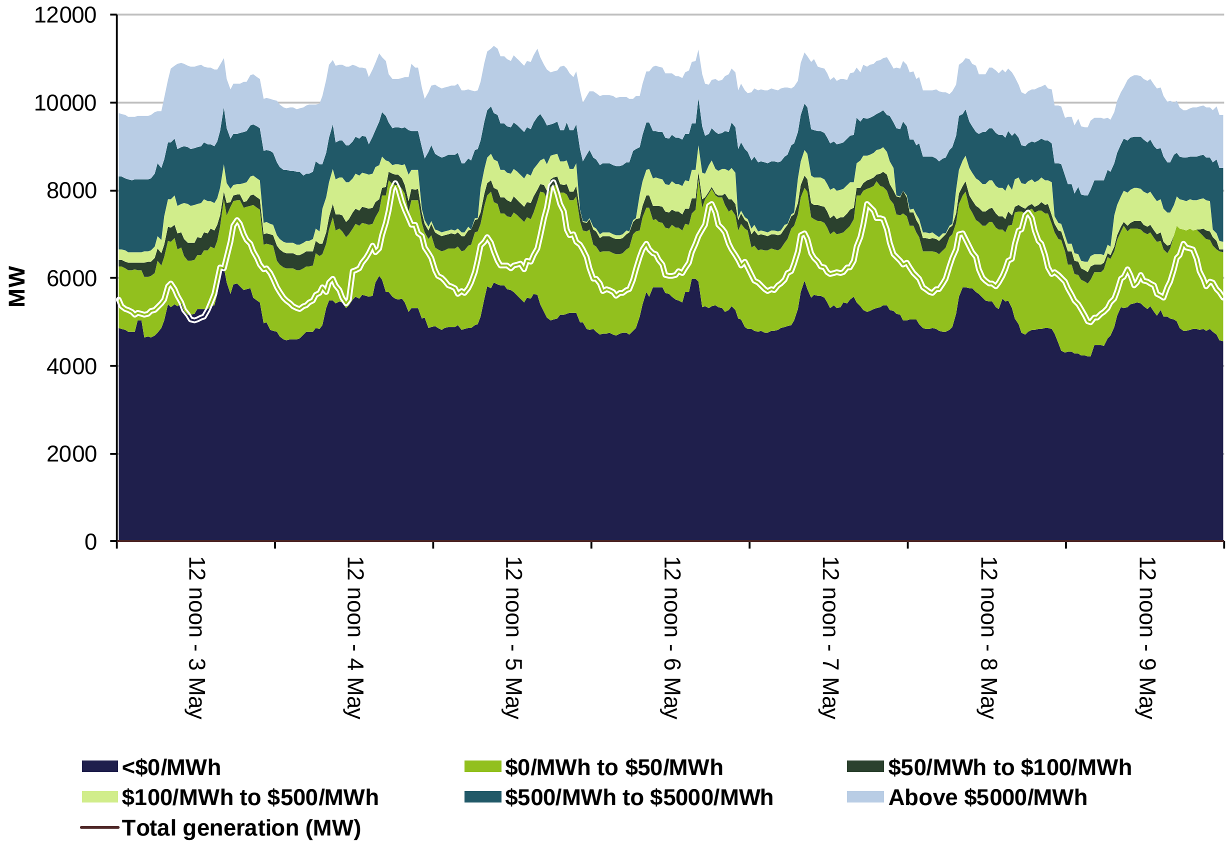


Figure 4: New South Wales generation and bidding patterns

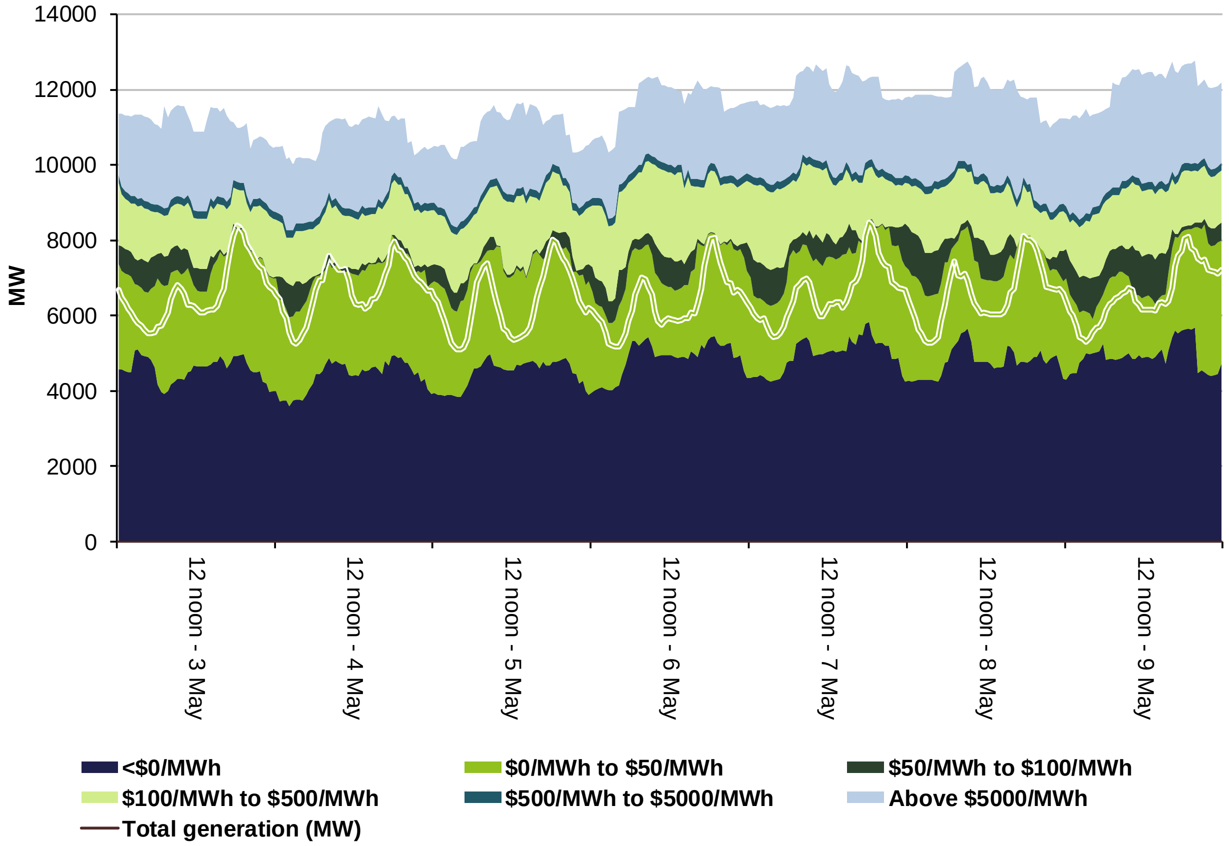


Figure 5: Victoria generation and bidding patterns

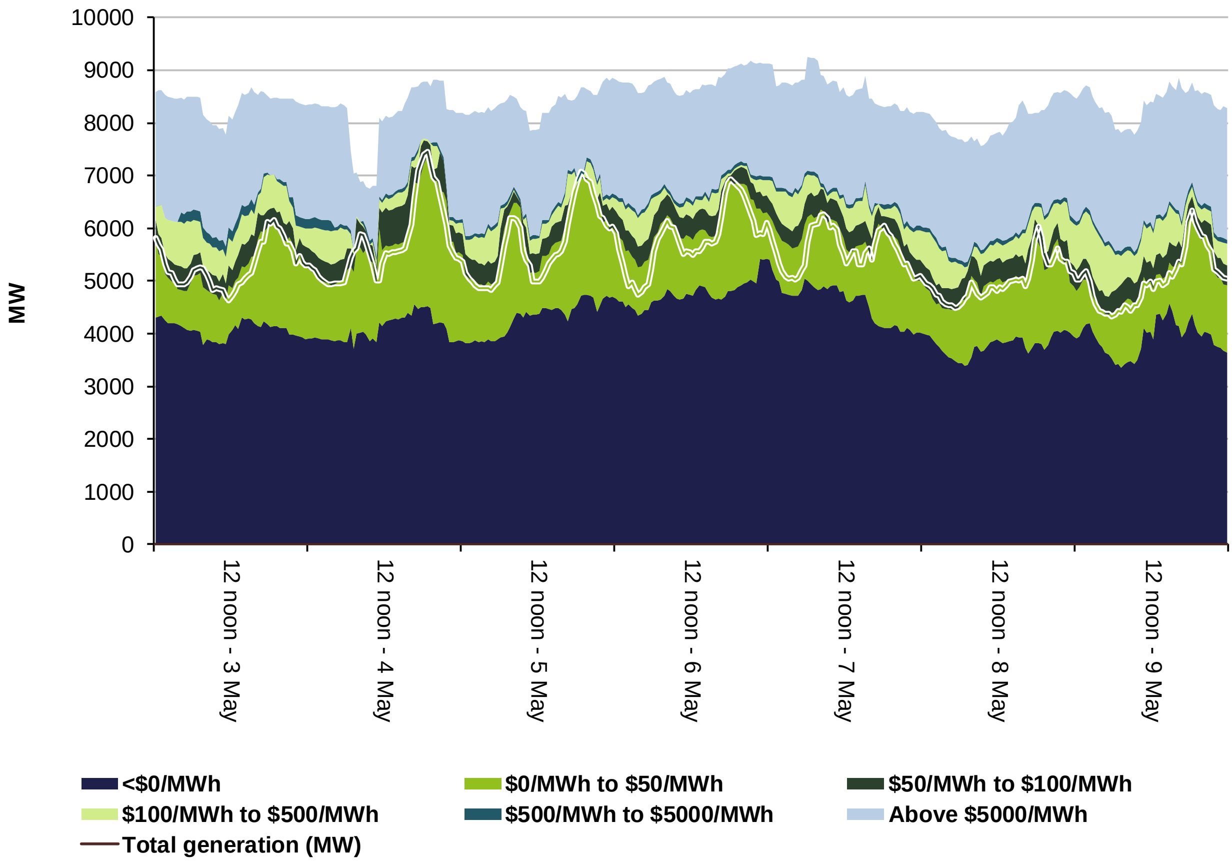


Figure 6: South Australia generation and bidding patterns

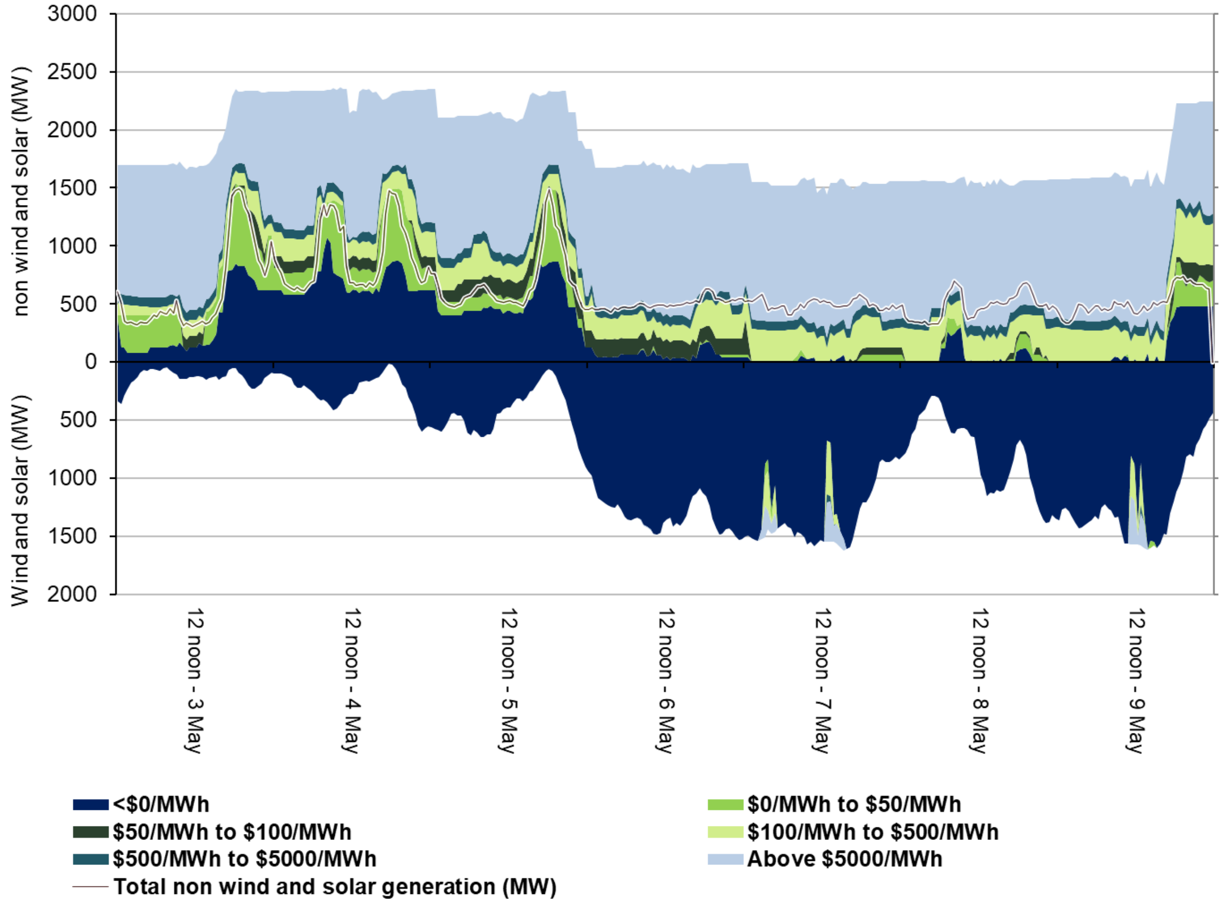
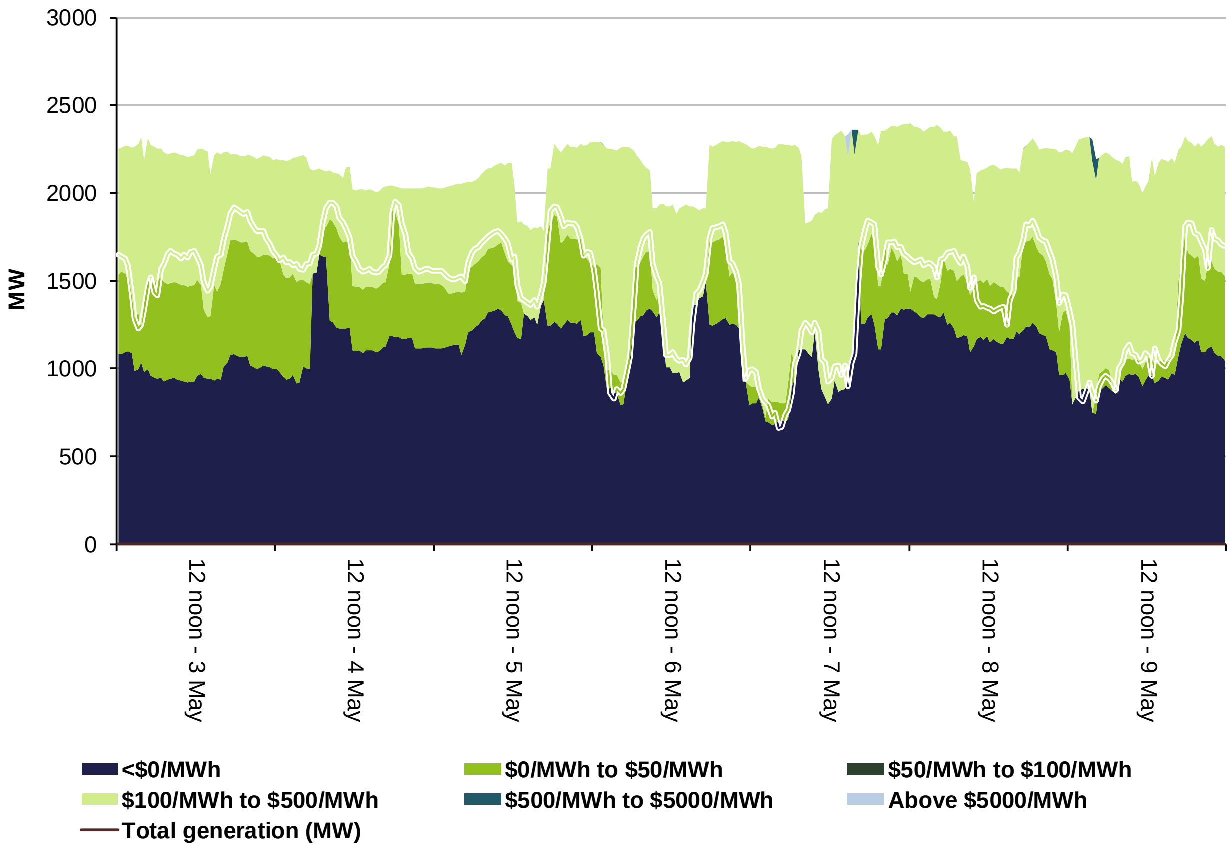


Figure 7: Tasmania generation and bidding patterns



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.

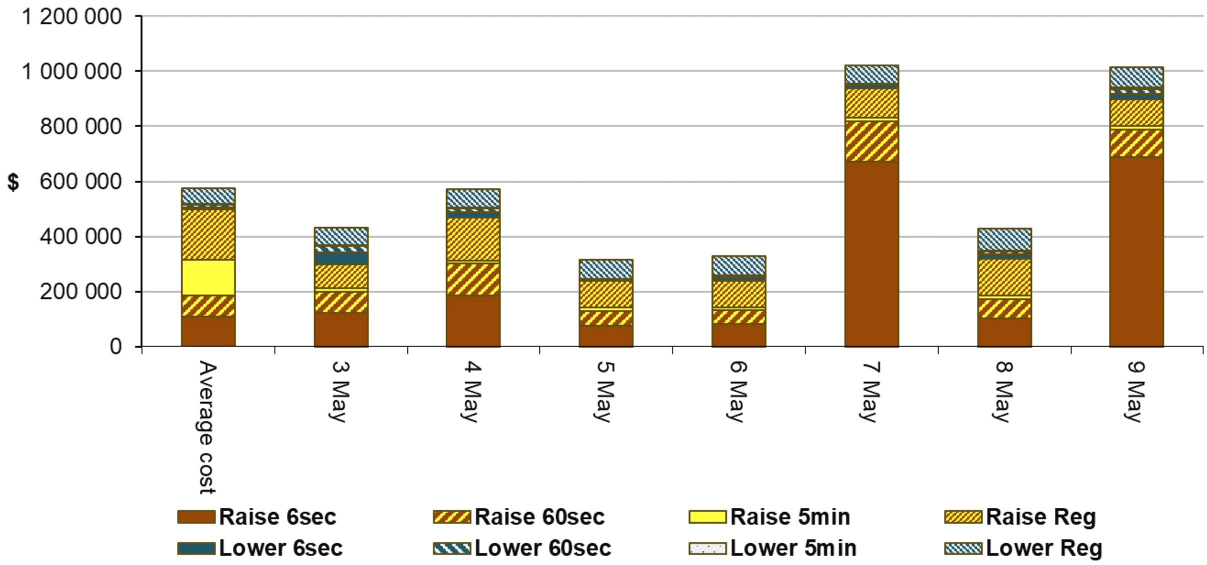
The Electricity Rules stipulate that generators pay for raise contingency services and customers pay for lower contingency services. Regulation services are paid for on a "causer pays" basis determined every four weeks by AEMO.

The total cost of FCAS on the mainland for the week was $2589000 or around 2 per cent of energy turnover on the mainland.

The total cost of FCAS in Tasmania for the week was $1524500 or around 25 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



On 7 May, the potential loss of transmission lines in Tasmania due to lightning increased FCAS requirements and caused prices close to $8000/MW and up to $14 700/MW for raise 6 second and raise 60 second local services. Further detail on this event is in the detailed analysis section below.

On 9 May, a special frequency control scheme in Tasmania was invoked and Basslink was unable to transfer FCAS and resulted in prices close to $8000/MW. Our reporting thresholds were not breached for either of these events.

Detailed market analysis of significant price events

South Australia

There were six occasions where the spot price in South Australia was below -$100/MWh.

Thursday, 7 May

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
1 pm	-156.15	7.66	.61	677	766	756	3088	2832	2831
1.30 pm	-152.21	21.10	7.97	723	775	738	3087	2848	2843

Demand was between 52 MW to 89 MW lower than forecast while availability was between 239 MW to 256 MW higher than forecast, four hours prior. Higher availability was due to higher than forecast low priced capacity in the market.

There was little capacity offered between the floor and $100/MWh, which meant that little changes in demand or availability could cause large fluctuations in price. This resulted in the dispatch price dropping to the floor for one dispatch interval in each trading interval. In response to the drop in price, participants rebid over 1000 MW to prices above $150/MWh resulting in price being set higher for the remainder of both trading intervals.

Saturday, 9 May

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
11.30 am	-148.63	.00	7.68	731	749	745	3145	2885	2921
Midday	-151.36	.00	.00	777	700	706	3144	2902	2921
12.30 pm	-188.24	.00	.00	779	658	660	3144	2915	2923
1 pm	-157.04	.00	-1000.00	733	638	623	3150	2919	2918

Demand was between 18 MW lower to 121 MW higher than forecast while availability was 229 MW to 260 MW higher than forecast, four hours prior. Higher availability was due to higher than forecast low priced capacity in the market.

There was little capacity offered between the floor and $148/MWh, which meant that little changes in demand or availability could cause large fluctuations in price. This resulted in the dispatch price dropping to the floor for at least one dispatch interval in each trading interval. In response to the drop in price, participants rebid up to 990 MW from the floor to prices above $51/MWh resulting in price being set higher for the remainder for the trading intervals.

Tasmania

There was one occasion where the spot price in Tasmania was greater than three times the Tasmania weekly average price of $31/MWh and above $250/MWh.

Thursday, 7 May

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 pm	2482.56	24.69	32.59	1171	1114	1233	2294	2320	2298

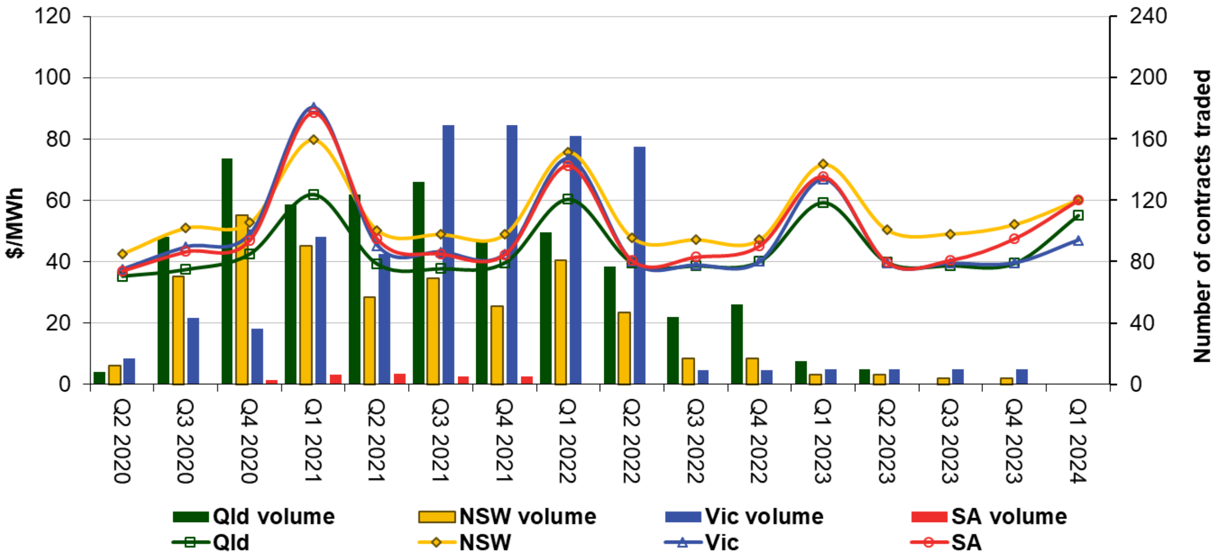
Demand was 57 MW higher than forecast while availability was 26 MW lower than forecast, four hours prior.

At 6.56 pm AEMO reclassified the Farrell to Sheffield lines from non-credible to credible contingencies for potential loss due to lightning, and invoked constraints which limited energy output from Bastyan and John Butters to 0 MW. This caused the requirement for raise services to increase by 140 MW within five minutes and resulted in the energy and FCAS markets co-optimising. The price was set at $14 700/MWh for one dispatch interval only.

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.

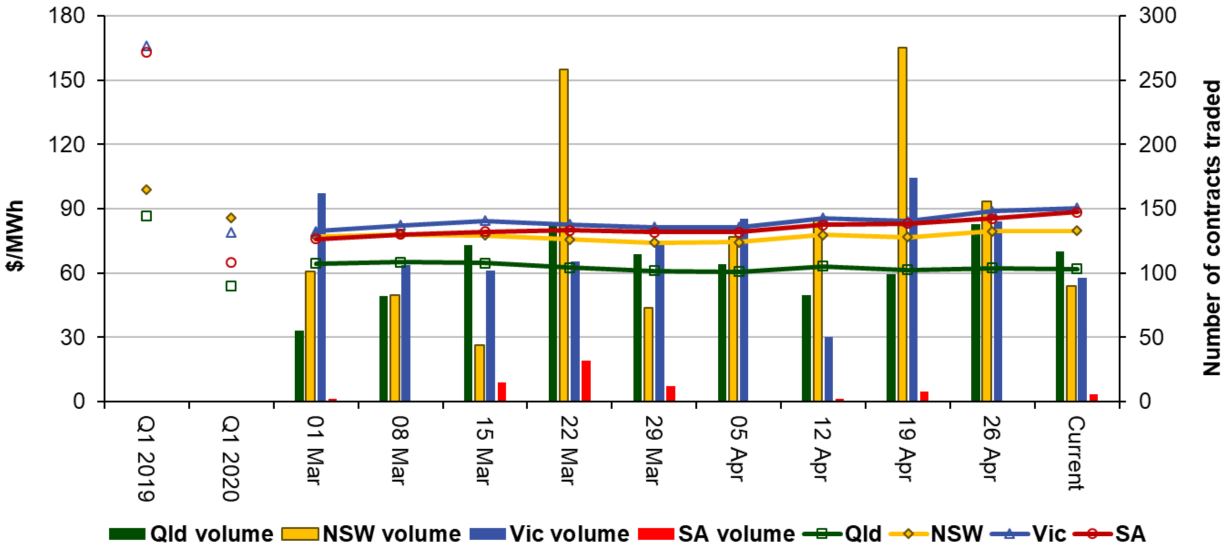
Figure 9: Quarterly base future prices Q2 2020 – Q1 2024



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 quarter 1 2019 and quarter 1 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 2021 base contracts over the past 10 weeks (and the past 2 years)

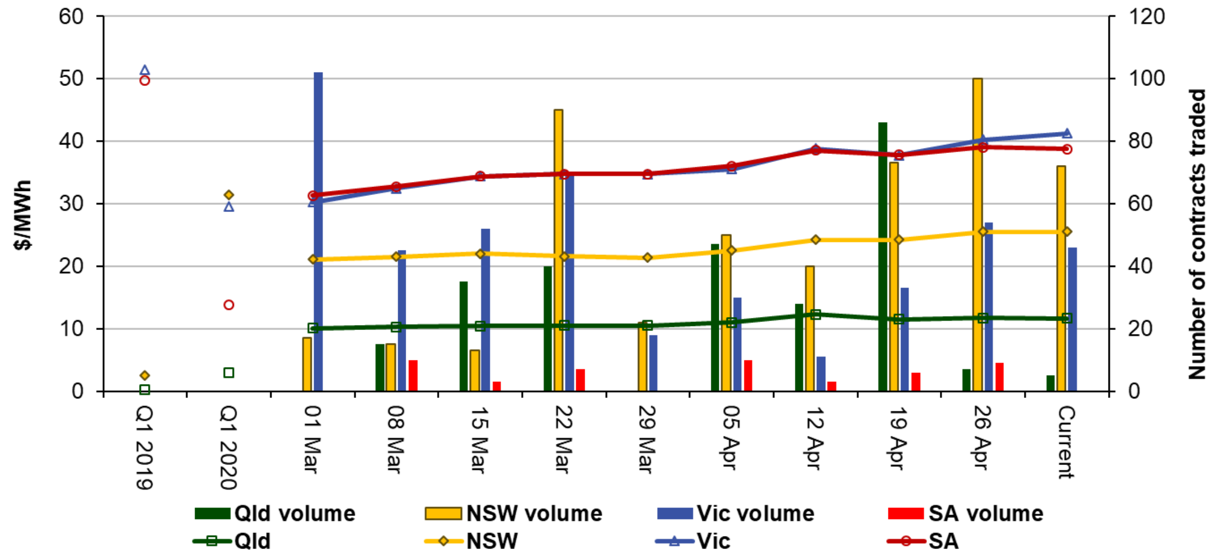


Note. Base contract prices are shown for each of the current week and the previous 9 weeks, with average prices shown for periods 1 and 2 years prior to the current year.

Source. ASXEnergy.com.au

Figure 11 shows how the price for each regional quarter 1 2021 cap contract has changed over the last 10 weeks (as well as the total number of trades each week). The closing quarter 1 2019 and quarter 1 2020 prices are also shown.

Figure 11: Price of Q1 2020 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 2020