Electricity Report

AUSTRALIAN ENERGY REGULATOR

24 – 30 May 2020

Weekly Summary

Weekly volume weighted average (VWA) prices ranged from $40/MWh in Queensland to $47/MWh in New South Wales, despite some prices above $500/MWh in Tasmania on 26 May. Q2 2020 quarter to date VWA prices are tracking from $30/MWh to $43/MWh, compared to $72/MWh to $99/MWh a year ago.

In Victoria, offers fell during the middle of the week due to reduced capacity offered at Loy Yang and Yallourn due to technical issues (refer Figure 5).

Prices for Q1 2021 base futures contracts increased slightly from the previous week but remain below $100/MWh.

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 24 to 30 May 2020.

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

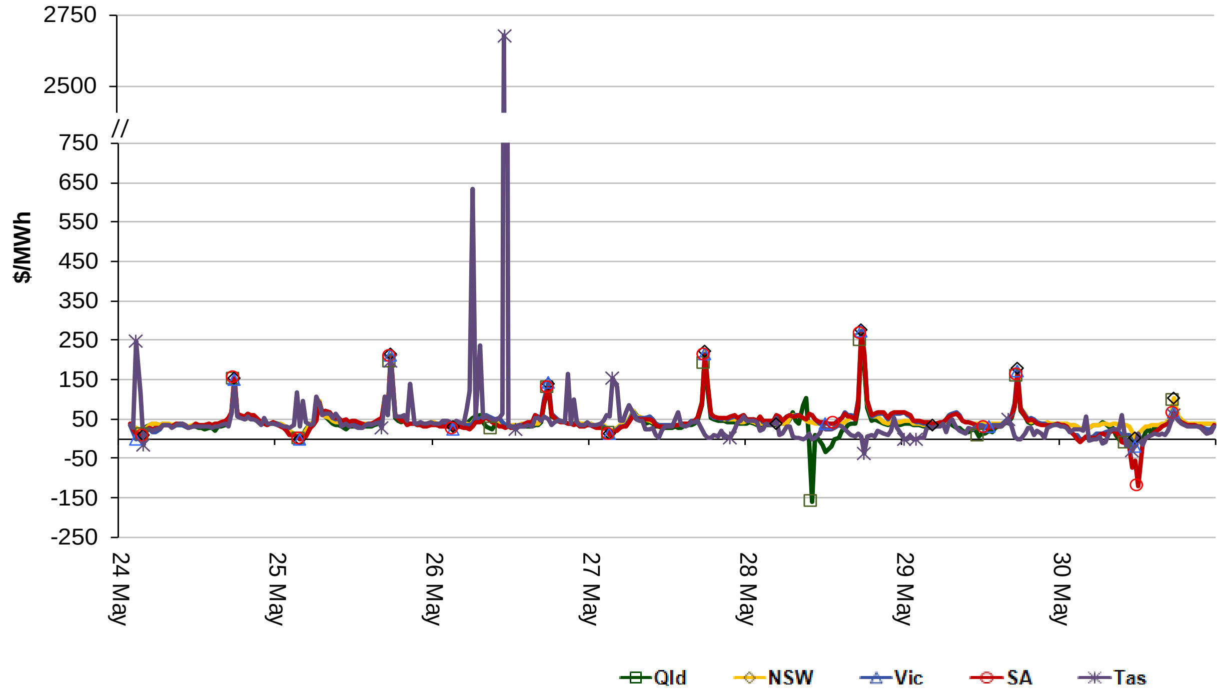


Figure 2 shows the volume weighted average (VWA) prices for the current week (with prices shown in Table 1) and the preceding 12 weeks, as well as the VWA price over the previous 3 financial years.

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

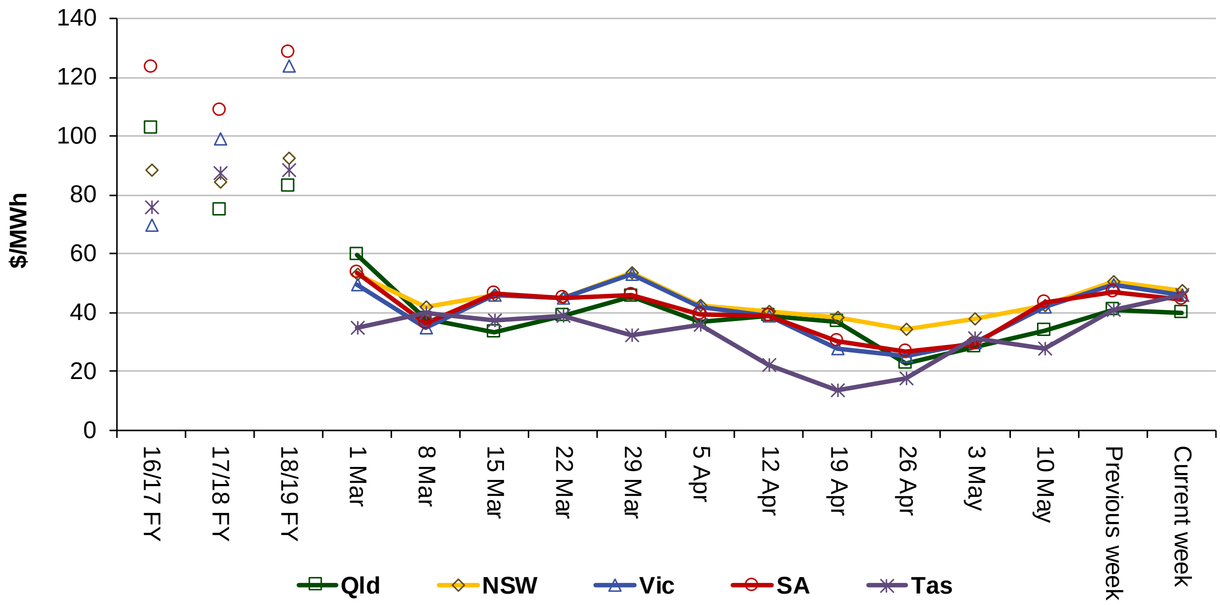


Table 1: Volume weighted average spot prices by region ($/MWh)

Region	Qld	NSW	Vic	SA	Tas
Current week	40	47	46	44	46
Q2 2019 (QTD)	72	80	97	91	99
Q2 2020 (QTD)	36	43	39	38	30
18-19 financial YTD	83	92	126	131	87
19-20 financial YTD	58	82	88	75	57

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 209 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	4	25	0	2
% of total below forecast	16	47	0	7

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

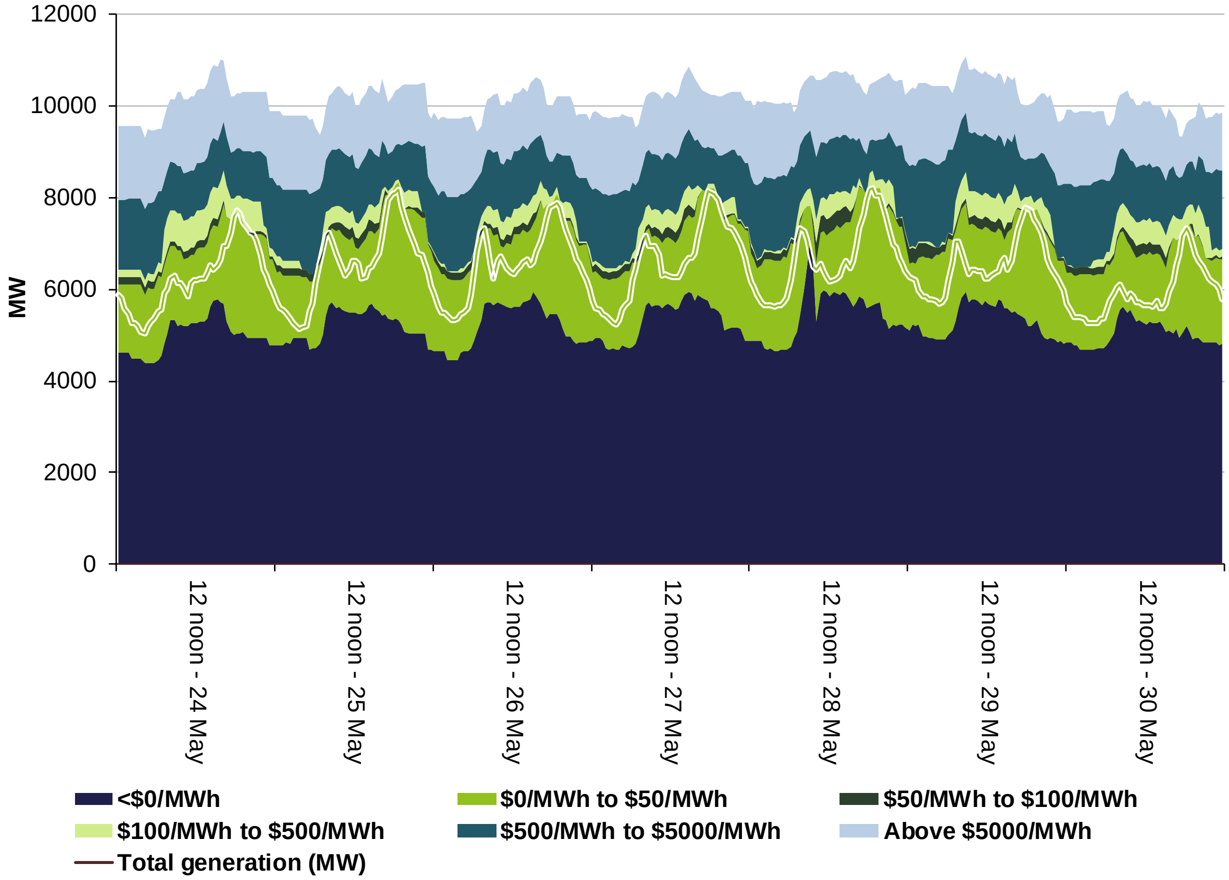


Figure 4: New South Wales generation and bidding patterns

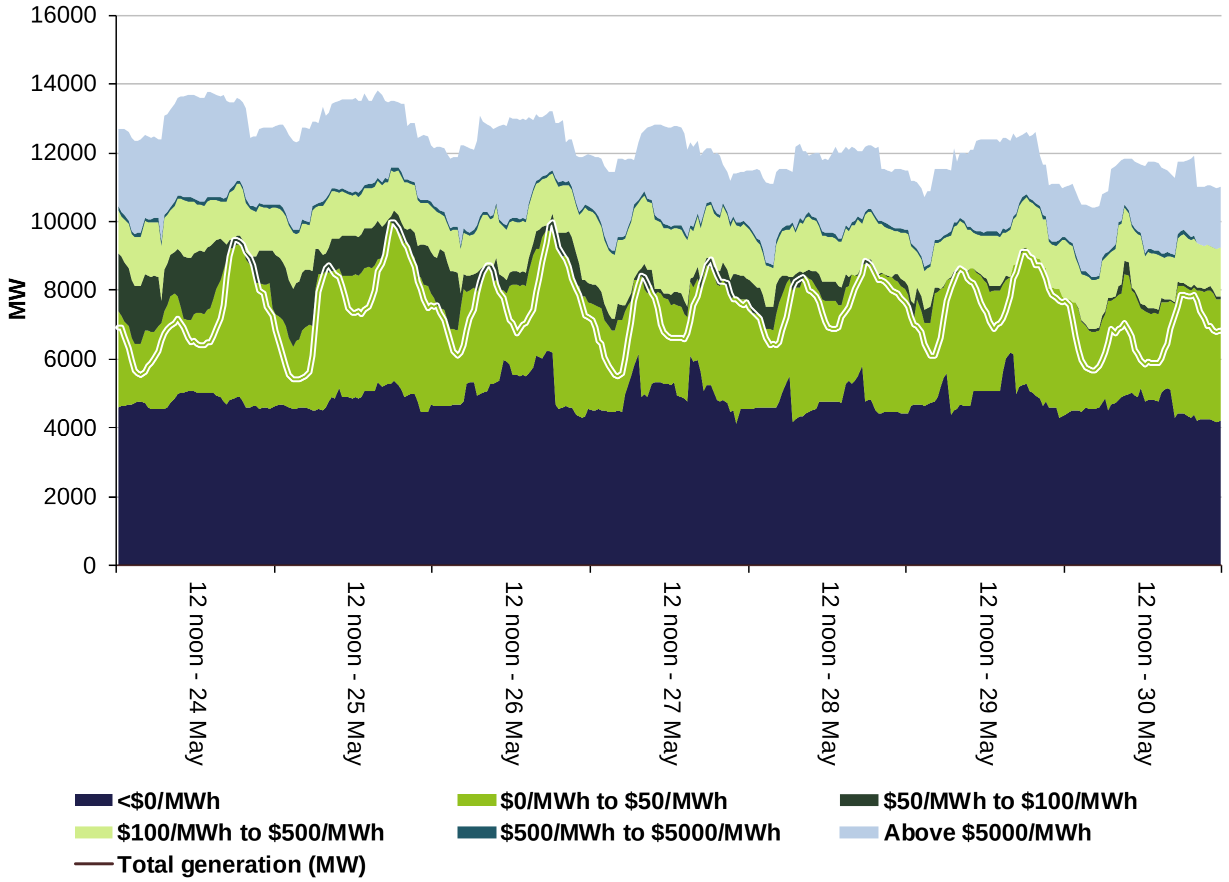


Figure 5: Victoria generation and bidding patterns

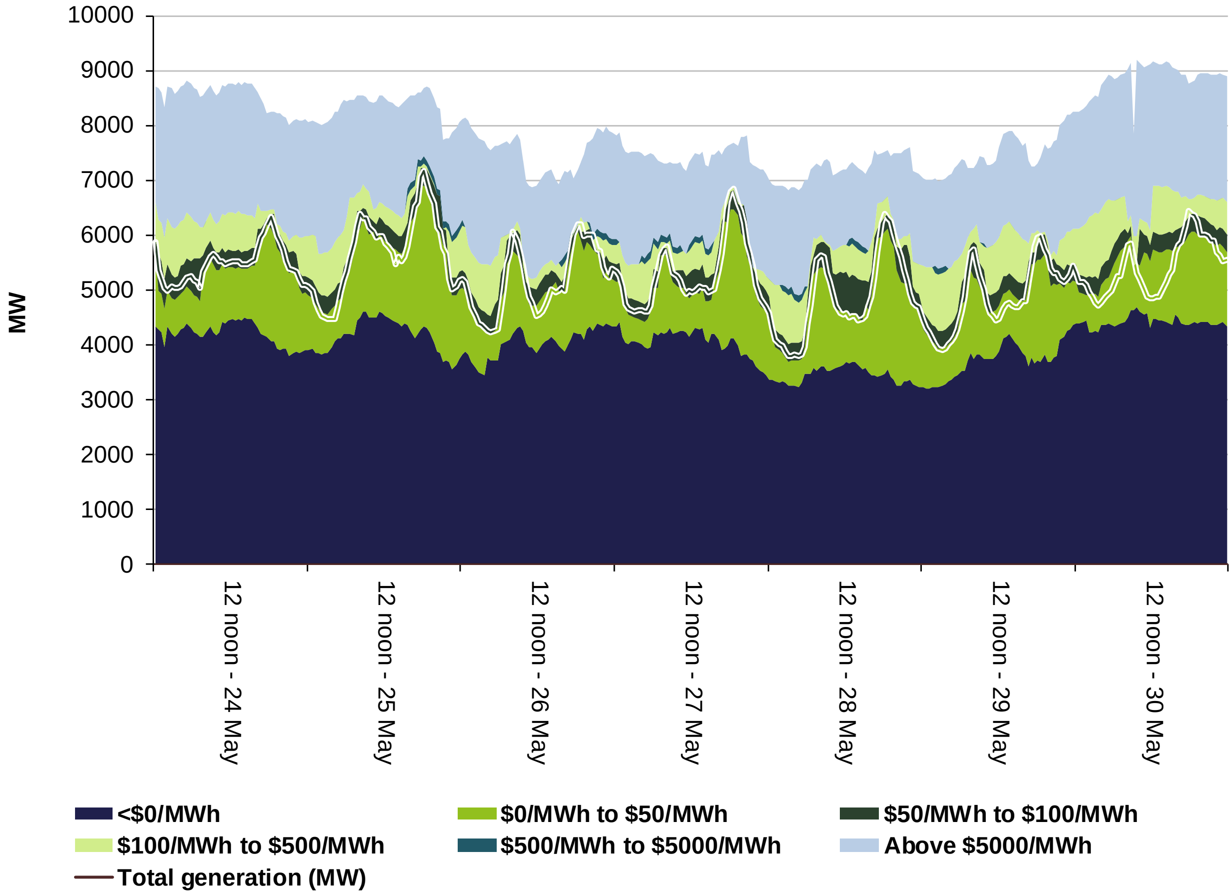


Figure 6: South Australia generation and bidding patterns

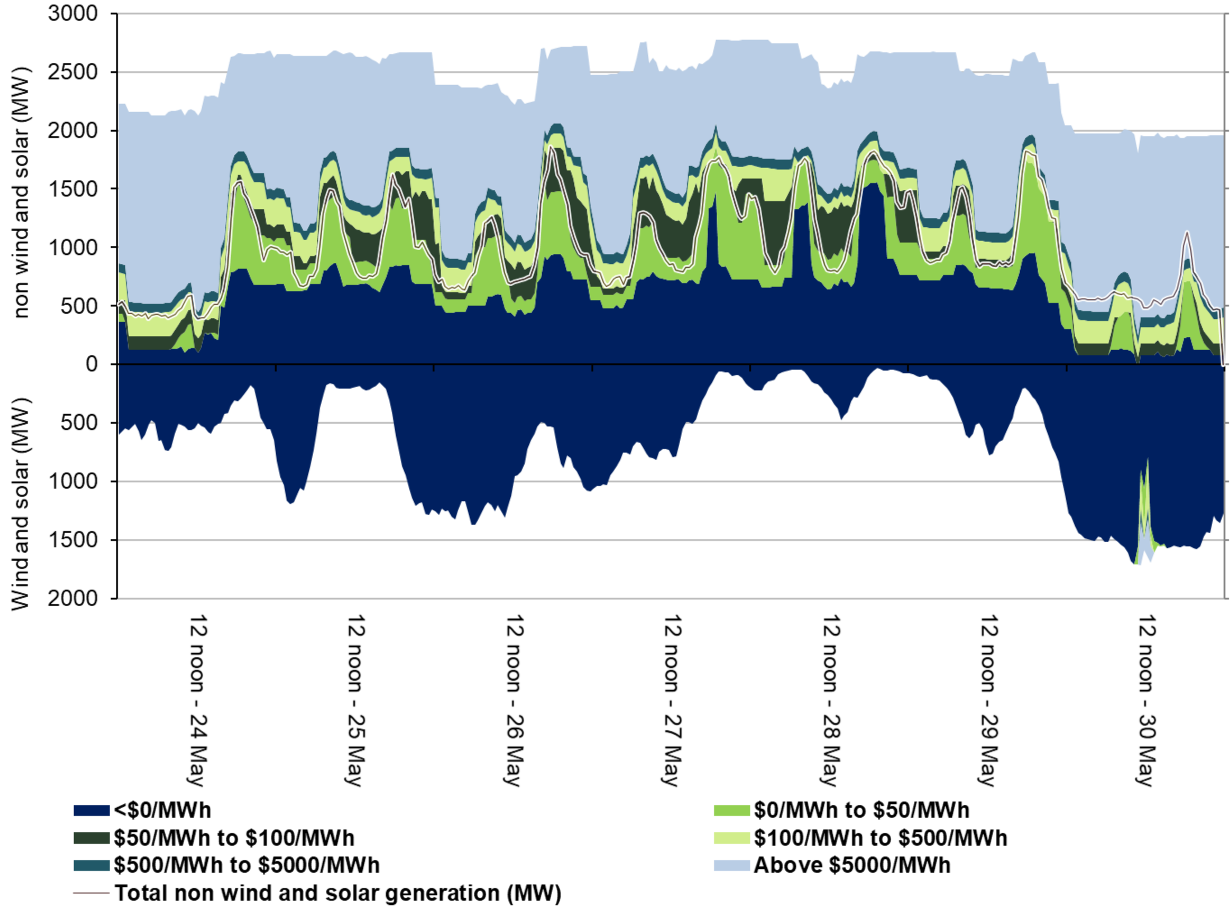
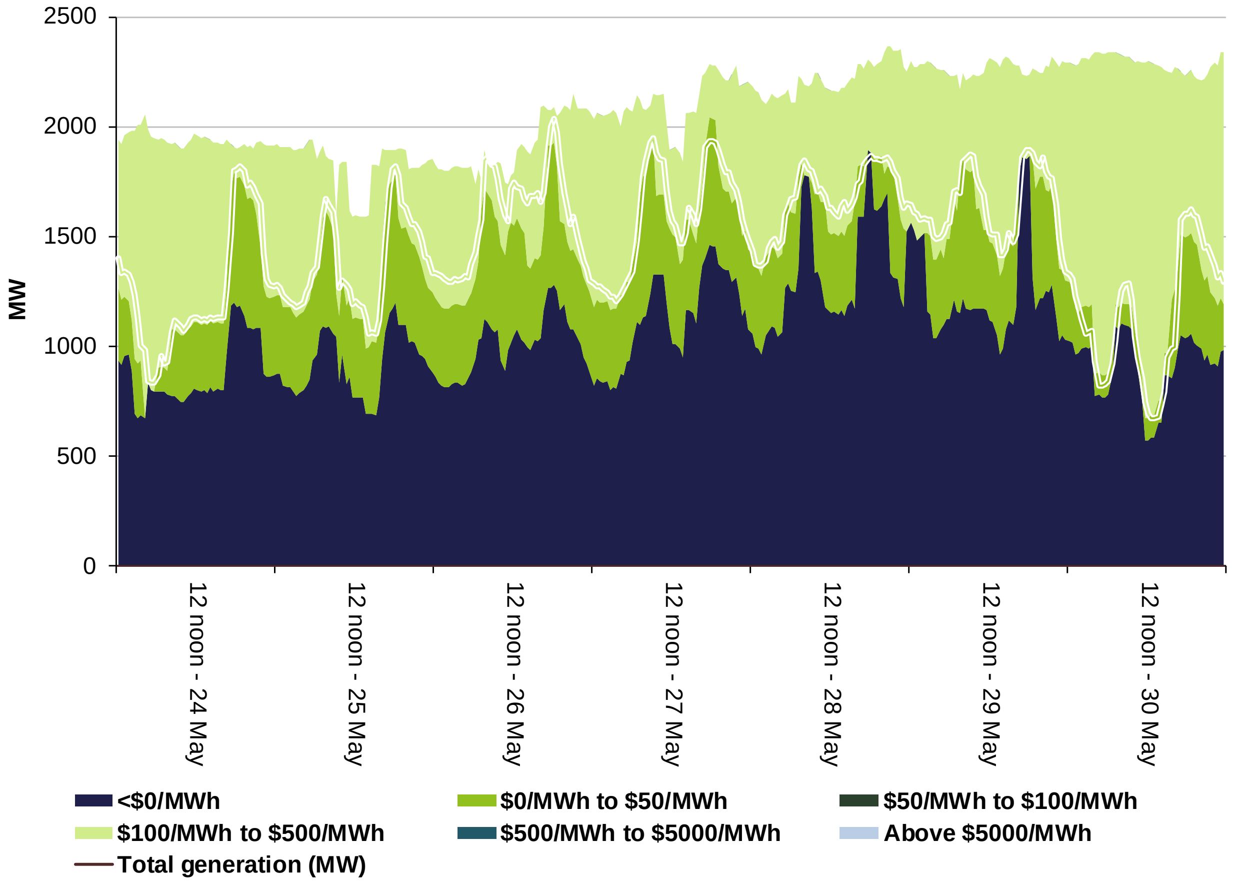


Figure 7: Tasmania generation and bidding patterns



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.

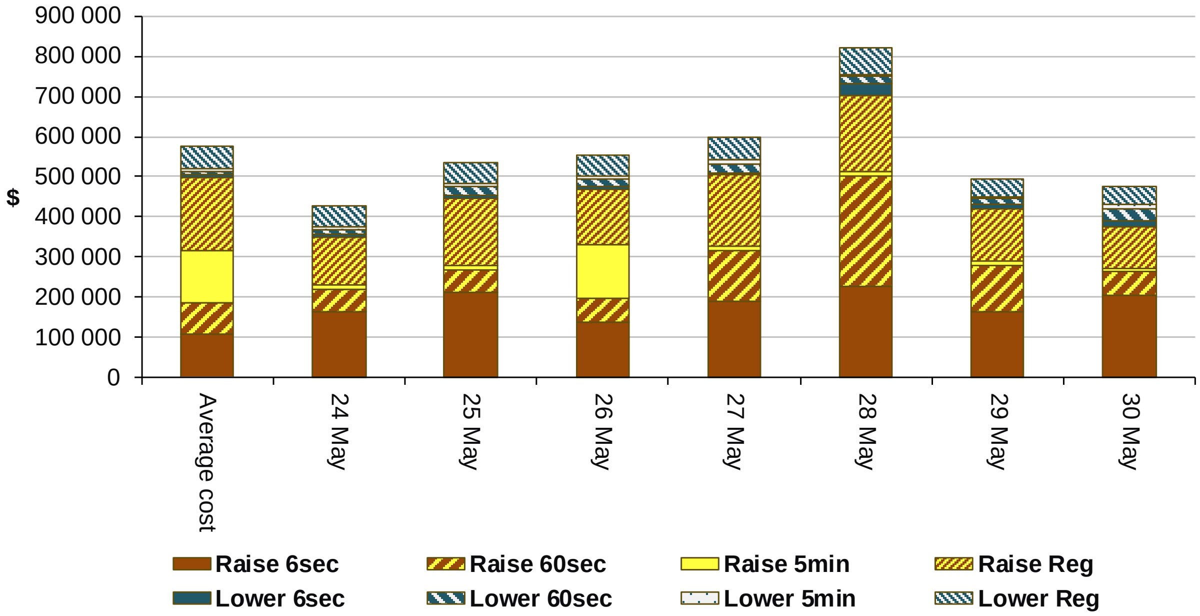
The Electricity Rules stipulate that generators pay for raise contingency services and customers pay for lower contingency services. Regulation services are paid for on a "causer pays" basis determined every four weeks by AEMO.

The total cost of FCAS on the mainland for the week was $3 249 000 or around 2 per cent of energy turnover on the mainland.

The total cost of FCAS in Tasmania for the week was $659 600 or around 7 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 spot price in New South Wales was greater than three times the New South Wales weekly average price of $47/MWh and above $250/MWh. The New South Wales price is used as a proxy for the mainland.

Thursday, 28 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
6 pm	276.78	190.01	299.5	25 250	25 202	25 409	32 721	33 381	33 896

Prices aligned across the mainland and will be treated as one region. Prices were similar to those forecast 12 hours prior but higher than forecast four hours prior.

Collectively, demand was close to forecast while availability was 660 MW lower than forecast, four hours prior. Lower than forecast availability was mainly due to rebids that removed capacity from prices below $52/MWh across Gladstone (165 MW priced below $38/MWh), Eraring (250 MW priced below $52/MWh), and Yallourn (270 MW priced at -$1000/MWh) – all due to technical issues.

Snowy Hydro also rebid capacity (171 MW at Laverton North and 100 MW at Murray) from prices below $60/MWh to prices above $300/MWh in response to forecast prices.

This resulted in prices being set above $290/MWh for the majority of the trading interval.

Queensland

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

Thursday, 28 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
10.30 am	-159.98	24.51	25.95	5616	5222	5176	10 863	10 951	10 978

Demand was 394 MW higher than forecast while availability was 88 MW lower than forecast, four hours prior.

Over a series of rebids from 9.06 am, CS Energy moved 480 MW of capacity from prices above $1/MWh to the price floor at Callide B, Gladstone and Kogan Creek power stations in response to constraints managing an unplanned line outage affecting the QNI interconnector. At 10.05 am demand dropped by 66 MW and a number of the constraints on the interconnector became binding. As a result, the price to fell to -$996/MWh for one dispatch interval. In response to the price falling to -$996/MWh, participants rebid 350 MW of capacity to prices above $0/MWh.

South Australia

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

Saturday, 30 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
12.30 pm	-122.55	0	-98.13	824	706	682	3597	3323	3351

Demand was 118 MW higher than forecast while availability was 274 MW higher than forecast, four hours prior. Higher than forecast availability was due to higher than forecast wind generation, most of which was priced below $0/MWh.

This resulted in the price being set below forecast for the first three dispatch intervals. Effective 12.20 pm, 367 MW was rebid from the floor to prices above $71/MWh (with 212 MW of this shifted to the market price cap) in response to negative prices.

Tasmania

There were two occasions where the spot price in Tasmania was greater than three times the Tasmania weekly average price of $46/MWh and above $250/MWh.

Tuesday, 26 May

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
6.30 am	635.87	37.68	36.91	1166	1195	1185	1801	1828	1845
11.30 am	2678.09	40.26	50.78	1251	1130	1201	1740	1741	1746

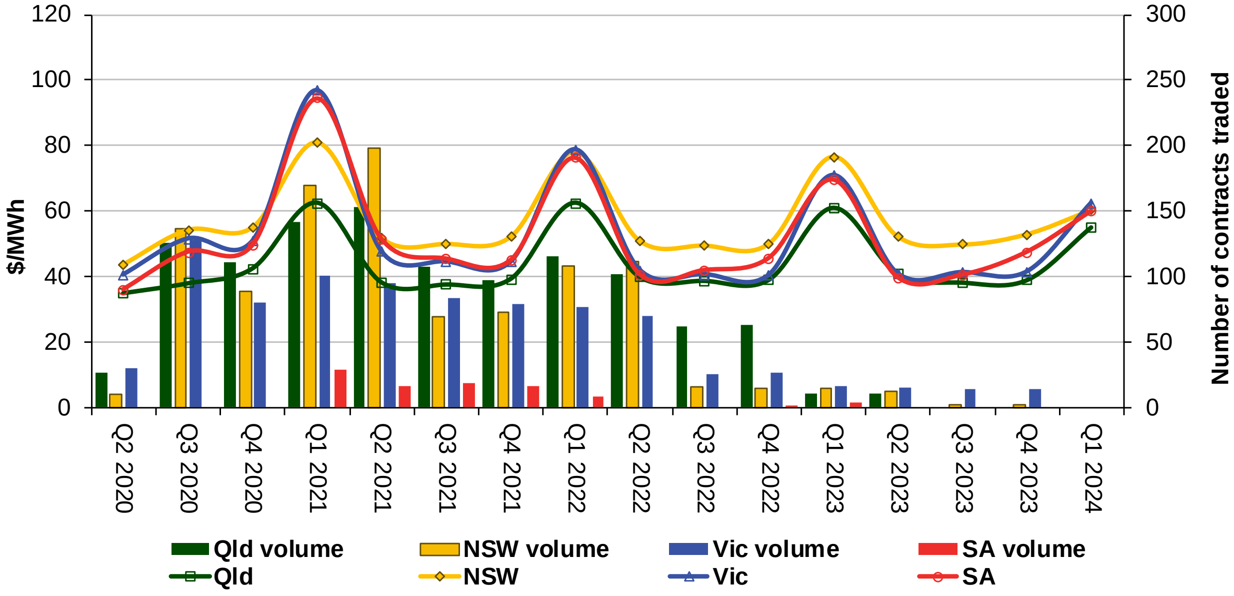
For the 6.30 am trading interval, demand and availability were both close to forecast four hours prior. A constraint relating to the potential loss of the non-scheduled Woolnorth power station violated at 6.15 am and caused the price to co-optimise between the energy and FCAS markets. As a result, at 6.15 am the dispatch price for energy was set at $3590/MWh.

For the 11.30 am trading interval, demand was 121 MW higher than forecast while availability was close to forecast, four hours prior. An unplanned outage of the capacitor bank at the Gordon substation caused an increase in the requirement for raise services by approximately 215 MW within five minutes at 11.10 am. With a number of plants already trapped/stranded in FCAS, this caused the price to co-optimise between the FCAS and energy markets. As a result, the price was set at $14 700/MWh for one dispatch 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 2020 – Q1 2024

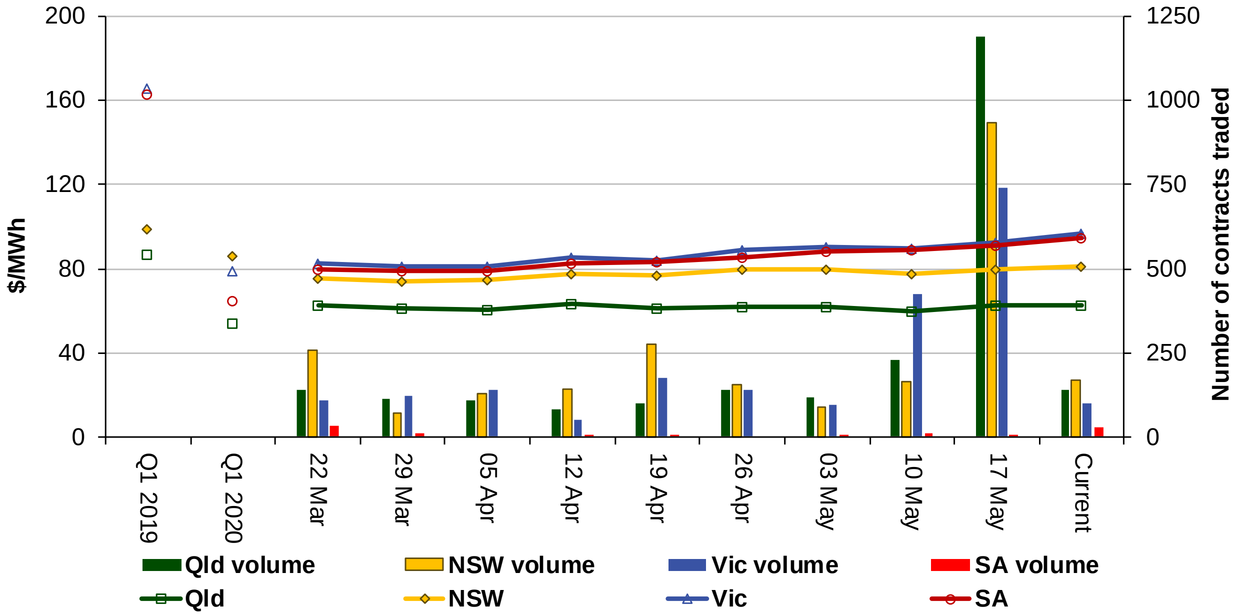


Source. ASXEnergy.com.au

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 Q1 2019 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.

The high volume of trades in Figure 10 is a result of the conversion of base load options to base future contracts on 19 May 2020.

Figure 10: Price of Q1 2021 base contracts over the past 10 weeks (and the past 2 years)

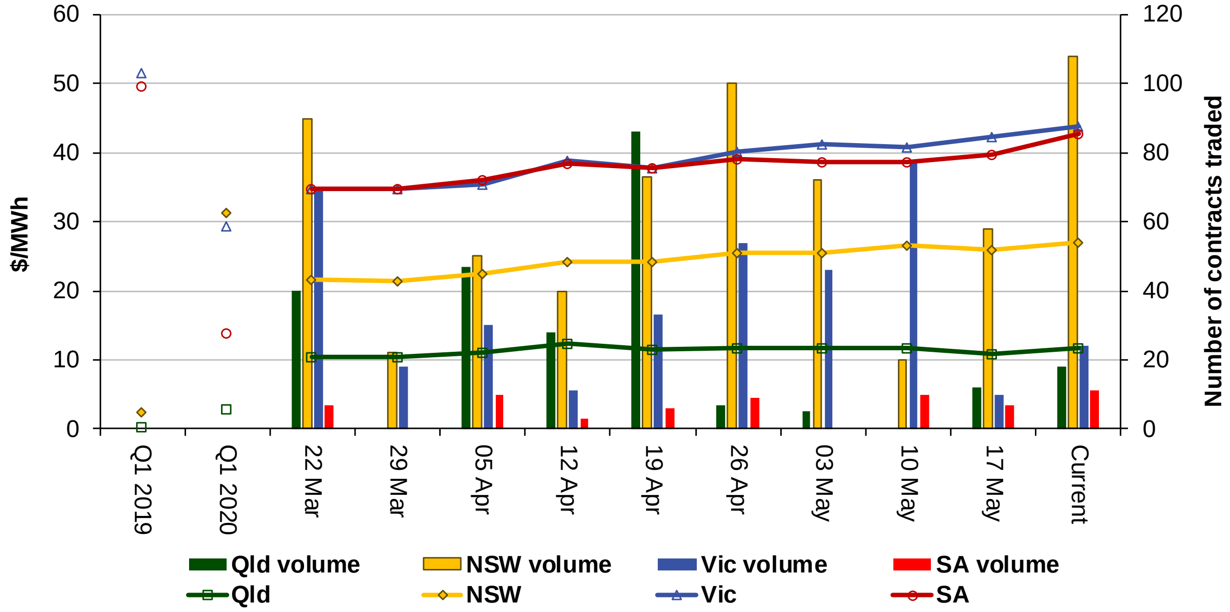


Note. Base contract prices are shown for each of the current week and the previous 9 weeks, with average prices shown for periods 1 and 2 years prior to the current year.

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 2019 and Q1 2020 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
June 2020