Electricity Report

AUSTRALIAN ENERGY REGULATOR

19 – 25 July 2020

Weekly Summary

Volume weighted average prices (VWA) for the week ranged from $47/MWh in Queensland to $74/MWh in Victoria. Q3 2020 quarter to date VWA prices are tracking between $13/MWh and $29/MWh lower than Q3 2019 quarter to date prices across all regions.

Spot prices across mainland regions aligned and breached our weekly reporting thresholds on 10 occasions throughout the week. In Tasmania, spot prices exceeded $2500/MWh on two occasions as a result of high local FCAS requirements.

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 19 to 25 July 2020.

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

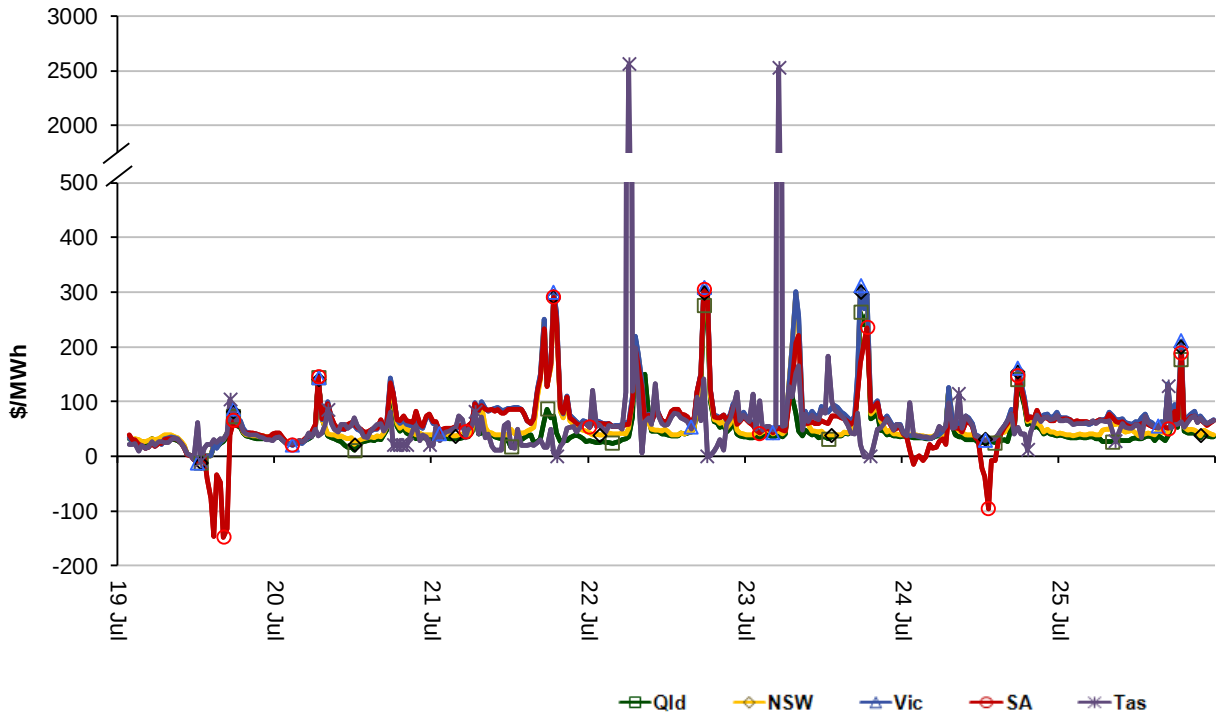


Figure 2 shows the volume weighted average (VWA) prices for the current week (with prices shown in Table 1) and the preceding 12 weeks, as well as the VWA price over the previous 3 financial years.

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

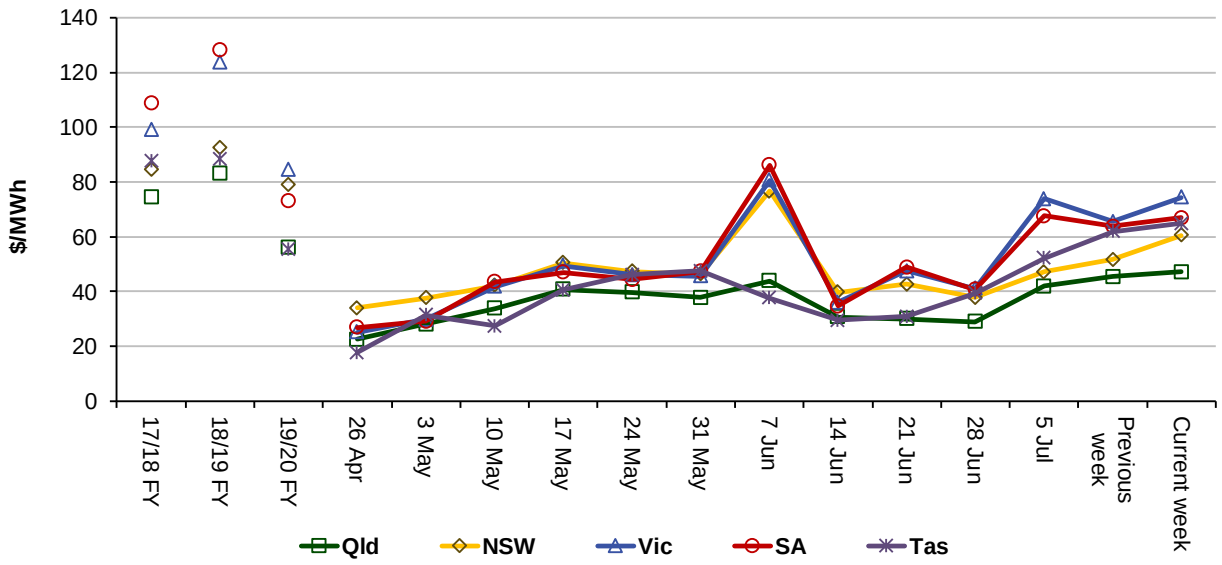


Table 1: Volume weighted average spot prices by region ($/MWh)

Region	Qld	NSW	Vic	SA	Tas
Current week	47	60	74	67	65
Q3 2019 (QTD)	69	74	85	75	73
Q3 2020 (QTD)	42	51	66	62	56
19-20 financial YTD	69	74	85	75	73
20-21 financial YTD	42	51	66	62	56

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 205 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	3	29	0	2
% of total below forecast	10	41	0	15

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

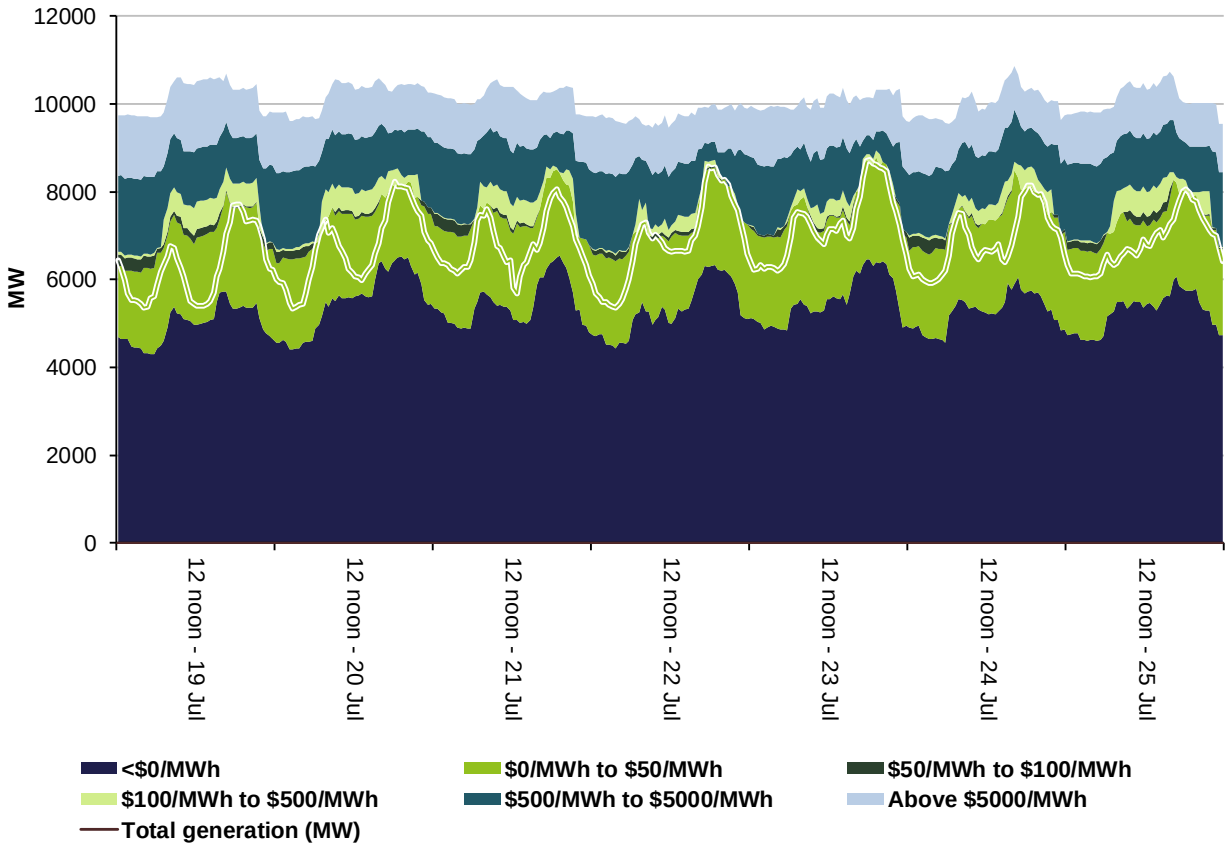


Figure 4: New South Wales generation and bidding patterns

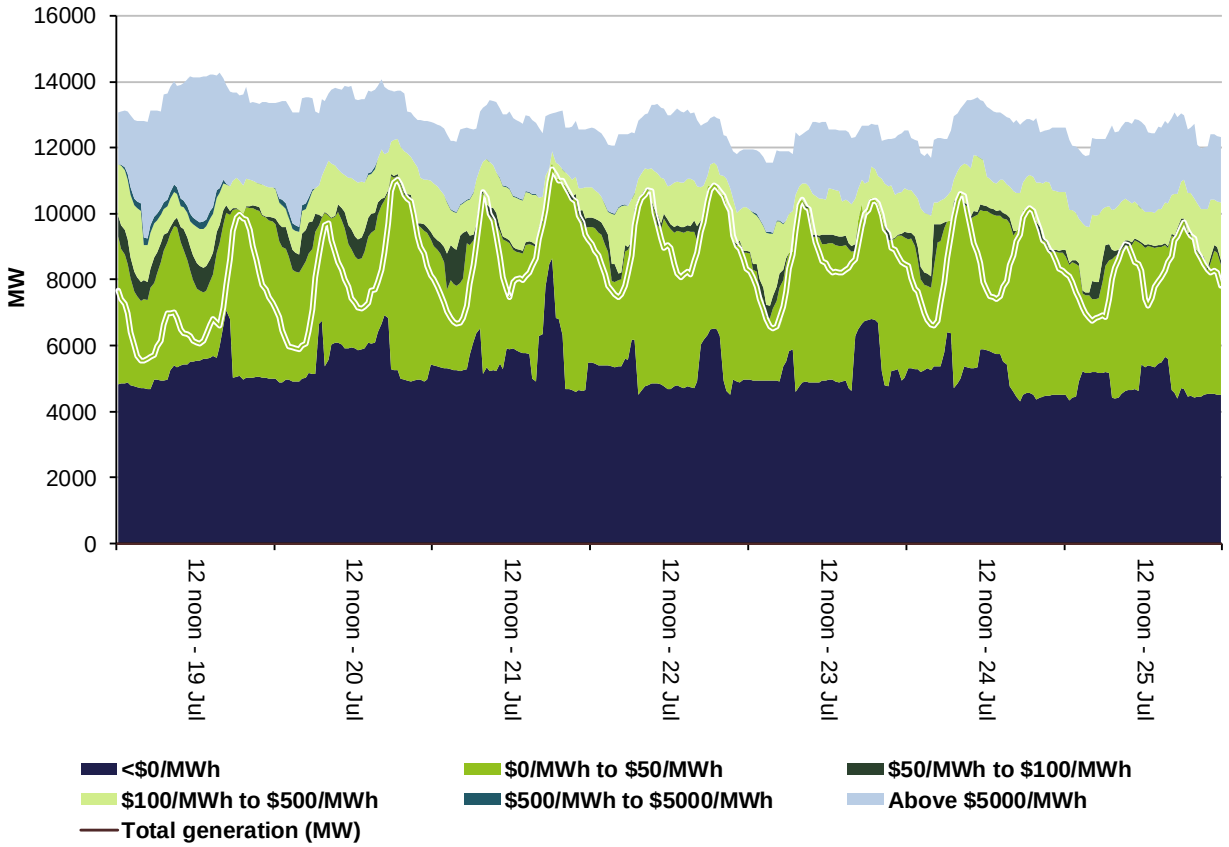


Figure 5: Victoria generation and bidding patterns

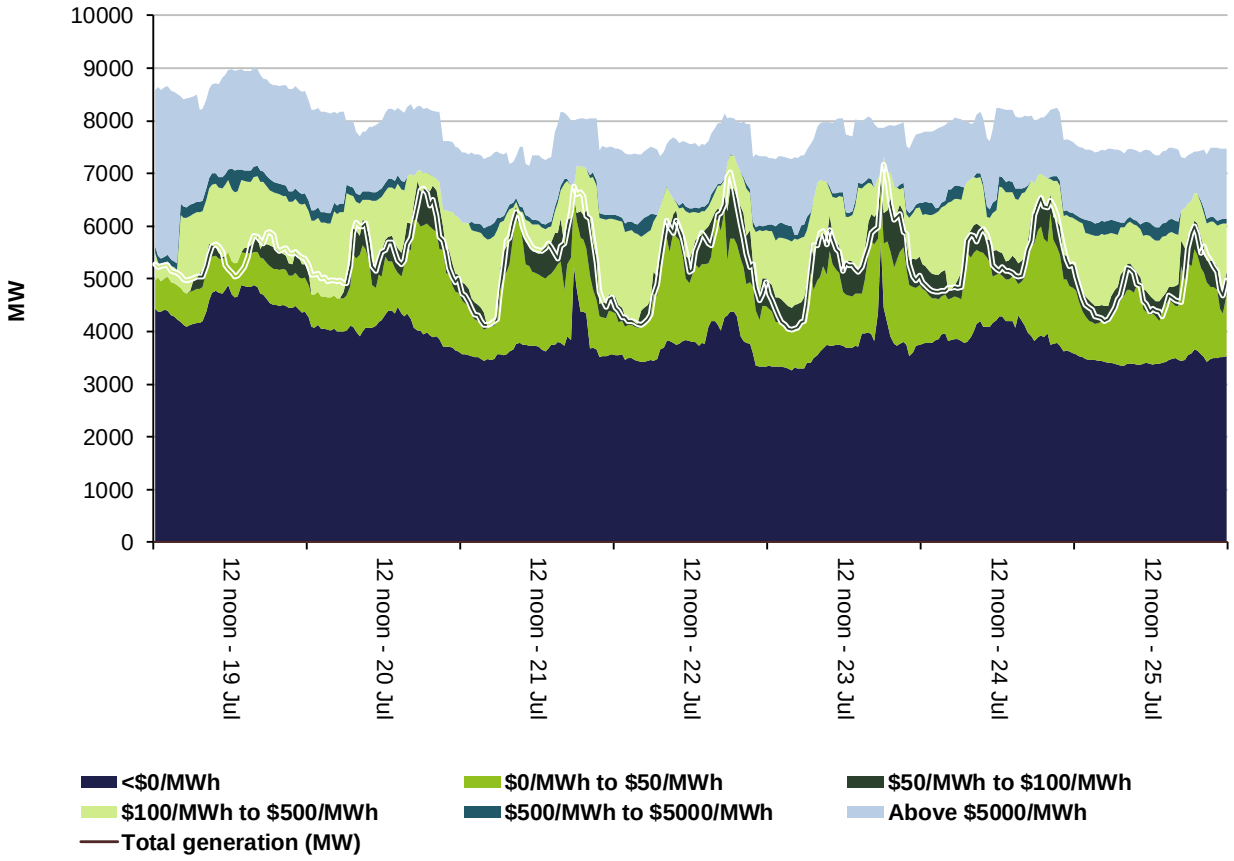


Figure 6: South Australia generation and bidding patterns

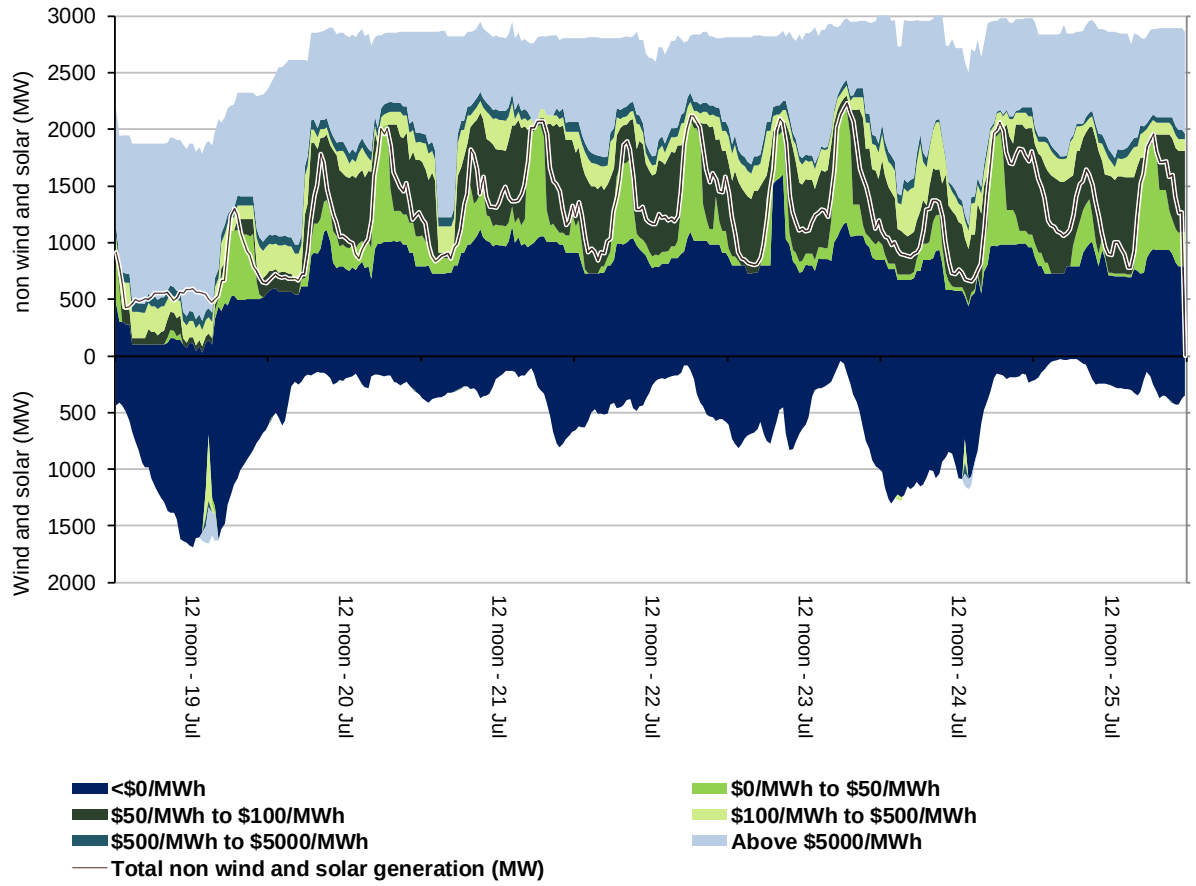
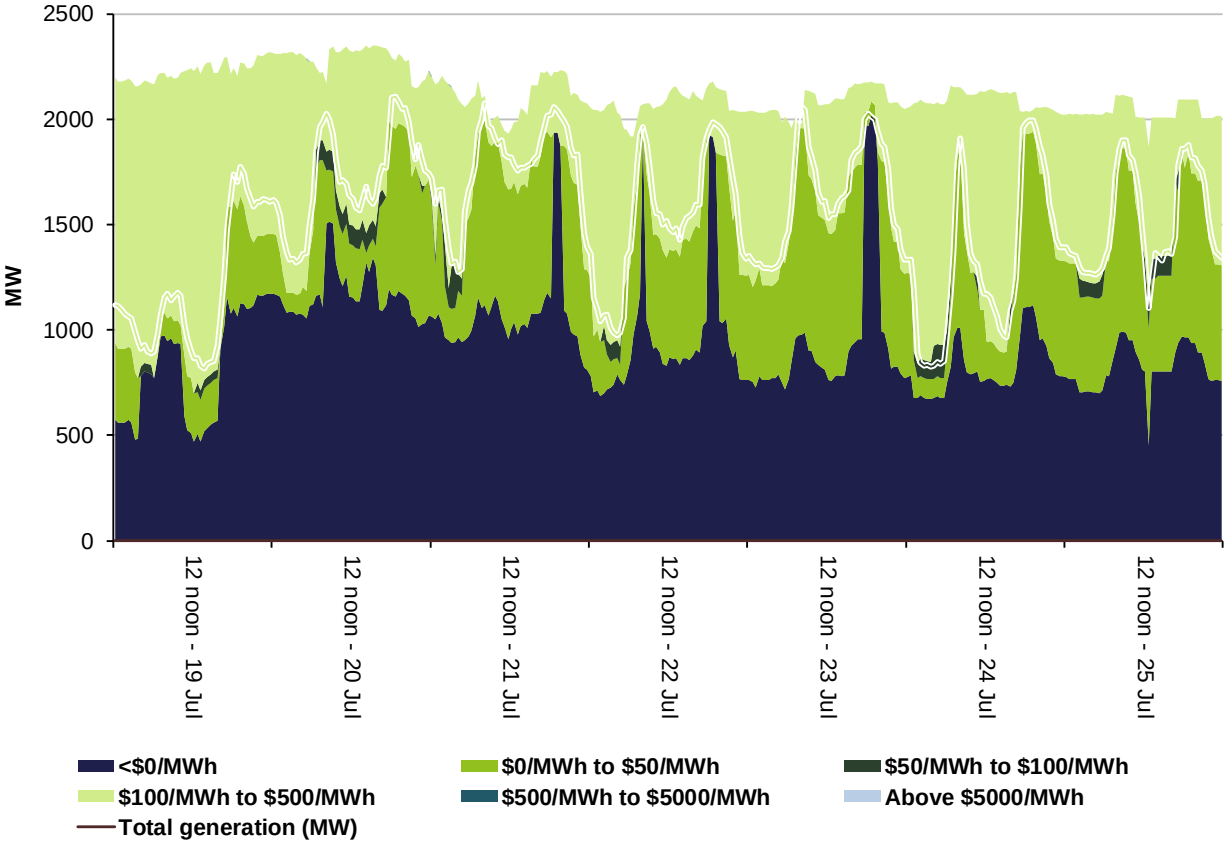


Figure 7: Tasmania generation and bidding patterns



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.

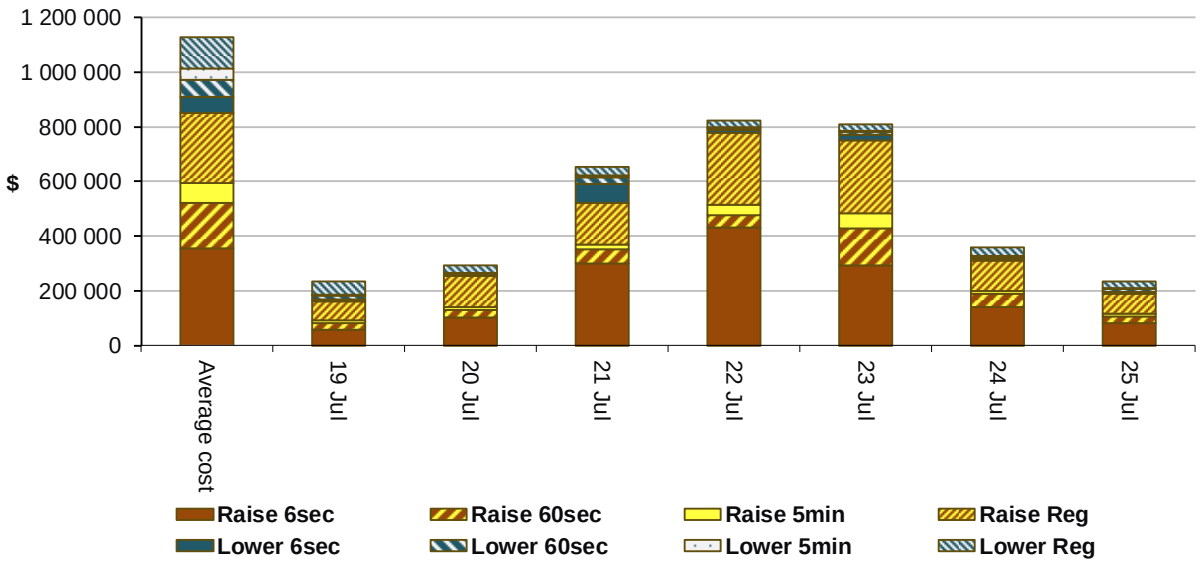
The Electricity Rules stipulate that generators pay for raise contingency services and customers pay for lower contingency services. Regulation services are paid for on a “causer pays” basis determined every four weeks by AEMO.

The total cost of FCAS on the mainland for the week was $2 991 000 or around 1 per cent of energy turnover on the mainland.

The total cost of FCAS in Tasmania for the week was $414 500 or around 3 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 were two occasions 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.

Wednesday, 22 July

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	298.16	283.87	271.59	28 355	27 681	27 603	33 666	33 976	34 191
6.30 pm	282.04	247.21	240	28 731	28 172	28 095	33 869	34 053	34 257

Prices were aligned across mainland regions and will be treated as one region and were close to forecast four hours prior.

Queensland

There were four occasions where the spot price in Queensland was greater than three times the Queensland weekly average price of $47/MWh and above $250/MWh.

Wednesday, 22 July

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
6 pm	275.48	246.49	233.74	7750	7505	7305	9918	10 174	10 253
6.30 pm	262.08	221.38	211.47	7787	7588	7371	9975	10 175	10 251

Prices were aligned across mainland regions and will be treated as one region. See Mainland section for analysis.

Thursday, 23 July

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
6 pm	262.73	64.58	116.22	7754	7579	7575	10 128	10 174	10 162
7 pm	258.28	95.35	131.77	7819	7665	7689	10 123	10 421	10 180

Prices were aligned across Queensland, New South Wales and Victoria and will be treated as one region. See New South Wales section for analysis.

New South Wales

There were seven occasions where the spot price in New South Wales was greater than three times the New South Wales weekly average price of $60/MWh and above $250/MWh.

Tuesday, 21 July

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
5.30 pm	245.46	60.67	48.13	19 427	19 193	19 438	23 673	23 962	24 376
7 pm	291.96	299.6	299.6	20 892	20 814	20 932	24 246	24 116	24 761
7.30 pm	249.66	278.96	101.44	20 643	20 424	20 568	24 301	24 271	24 845

Prices were aligned across New South Wales, Victoria and South Australia and will be treated as one region.

For the 5.30 pm trading interval, demand was 234 MW higher than forecast, while availability was 288 MW less than forecast, four hours prior. Less than forecast availability was due to less than forecast wind generation in South Australia and rebidding prior to the trading interval which saw:

- Origin effectively remove 100 MW of capacity at Eraring from below $48/MWh due to an outage extension
- AGL remove 110 MW of capacity at Bayswater from $38/MWh due to plant failure.

Higher than forecast demand and lower than forecast availability saw the spot price settle above $225/MWh for most of the trading interval.

For the 7 pm and 7.30 pm trading intervals, prices were close to forecast four hours prior.

Wednesday, 22 July

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
6 pm	298.16	283.87	271.59	11 279	10 883	10 953	12 773	12 864	12 915
6.30 pm	282.04	247.21	240.00	11 413	11 059	11 174	12 867	12 875	12 936

Prices were aligned across mainland regions and will be treated as one region. See Mainland section for analysis.

Thursday, 23 July

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
8 am	296.44	299.6	299.6	17 126	17 155	17 120	20 218	20 220	19 671
8.30 am	240.52	299.6	299.6	19 474	19 264	19 244	23 672	23 780	23 071

For the 8 am trading interval, prices were aligned across New South Wales and Victoria and will be treated as one region. Prices were close to forecast four hours prior.

For the 8.30 am trading interval, prices were aligned across New South Wales, Victoria and South Australia and will be treated as one region. Prices were slightly lower than forecast as participants especially in South Australia rebid capacity from above $300/MWh to below $52/MWh in response to higher than forecast prices.

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	299.6	74.32	133.72	26 124	25 765	25 841	30 664	30 804	30 870
6.30 pm	271.62	82.41	150.59	26 442	26 121	26 280	30 704	31 053	30 927
7 pm	285.18	110.39	149.15	26 239	26 053	26 202	30 747	31 113	30 962

For the 6 pm to 7 pm trading intervals, prices were aligned across Queensland, New South Wales and Victoria and will be treated as one region.

Demand was between 187 MW and 359 MW higher than forecast while availability was between 140 MW and 365 MW lower than forecast, four hours prior. Lower than forecast availability was due to rebidding at Bodangora Wind Farm, Bayswater, Liddell, Braemar A, Somerton, and Tarong which saw up to 622 MW of capacity removed from prices below $38/MWh. With higher than forecast demand, prices settled above forecast for each trading interval.

Victoria

There were ten occasions where the spot price in Victoria was greater than three times the Victoria weekly average price of $74/MWh and above $250/MWh.

Tuesday, 21 July

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
5.30 pm	250.99	83.89	110.70	6786	6899	6906	8011	7974	7849
7 pm	299.99	325.44	324.11	6931	7207	7147	8041	7949	7882
7.30 pm	262.26	299.99	110.70	6899	7020	6977	8044	7949	7869

Prices were aligned across New South Wales, Victoria and South Australia and will be treated as one region. See New South Wales section for analysis.

Wednesday, 22 July

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
6 pm	309.23	361.44	380.07	7184	7156	7251	8055	8011	8022
6.30 pm	299.99	428.08	438.58	7219	7253	7300	8066	8018	8025

Prices were aligned across mainland regions and will be treated as one region. See Mainland section for analysis.

Thursday, 23 July

Table 12: 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
8 am	299.99	297.64	310.49	6333	6611	6734	7872	7890	7430
8.30 am	256.01	306.12	328.36	6641	6775	6914	7944	7962	7473
6 pm	311.58	681.58	591.11	7329	7321	7327	7871	7843	7879
6.30 pm	270.06	681.87	580.64	7354	7397	7397	7876	7848	7883
7 pm	296.97	639.64	581.72	7168	7349	7320	7894	7858	7891

Prices were aligned with other regions, see the New South Wales section for details.

South Australia

There were four occasions where the spot price in South Australia was greater than three times the South Australia weekly average price of $67/MWh and above $250/MWh and there were three occasions where the spot price was below -$100/MWh.

Sunday, 19 July

Table 13: 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
3 pm	-146.92	0.40	-96.67	875	861	788	3516	3090	3078
4.30 pm	-148.23	23.82	21.72	1103	1074	1046	3626	3143	3124
5 pm	-132.80	28.42	22.75	1196	1203	1175	3646	3184	3385

Demand was close to forecast while availability was around 450 MW higher than forecast.

For each of these trading intervals the dispatch price fell to the floor after rebidding by participants of at least 200 MW of capacity to the price floor. For 3 pm, once the price went to the floor participants rebid 971 MW to above $71/MWh. For 4.30 pm and 5 pm the price went to the floor for the last dispatch interval of the trading interval.

Tuesday, 21 July

Table 14: 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 pm	290.81	317.07	315.79	2342	2282	2280	3122	3133	3247
7.30 pm	251.29	288.21	106.09	2333	2277	2274	3154	3165	3307

For the 7 pm and 7.30 pm trading intervals, prices were aligned across New South Wales, Victoria and South Australia and will be treated as one region. See New South Wales section for analysis.

Wednesday, 22 July

Table 15: 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	305.61	379.95	380.00	2142	2137	2094	2920	2927	3001
6.30 pm	298.10	450.00	448.48	2312	2272	2250	2961	2985	3045

Prices were aligned across mainland regions and will be treated as one region. See Mainland section for analysis.

Tasmania

There were two occasions where the spot price in Tasmania was greater than three times the Tasmania weekly average price of $65/MWh and above $250/MWh.

Wednesday, 22 July

Table 16: 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	2555.35	67.53	69.88	1193	1184	1196	1919	2055	2041

Demand was close to forecast while availability was 136 MW less than forecast, four hours prior. Less than forecast availability was due to Hydro Tasmania removing capacity due to a plant start issue.

At 6.05 am a constraint relating to the minimum required quantity of Tasmanian raise 5 minute FCAS violated, causing the co-optimisation between energy and FCAS markets. As a result, at 6.05 am the dispatch price for energy was set at $15 000/MWh.

Thursday, 23 July

Table 17: Price, Demand and Availability

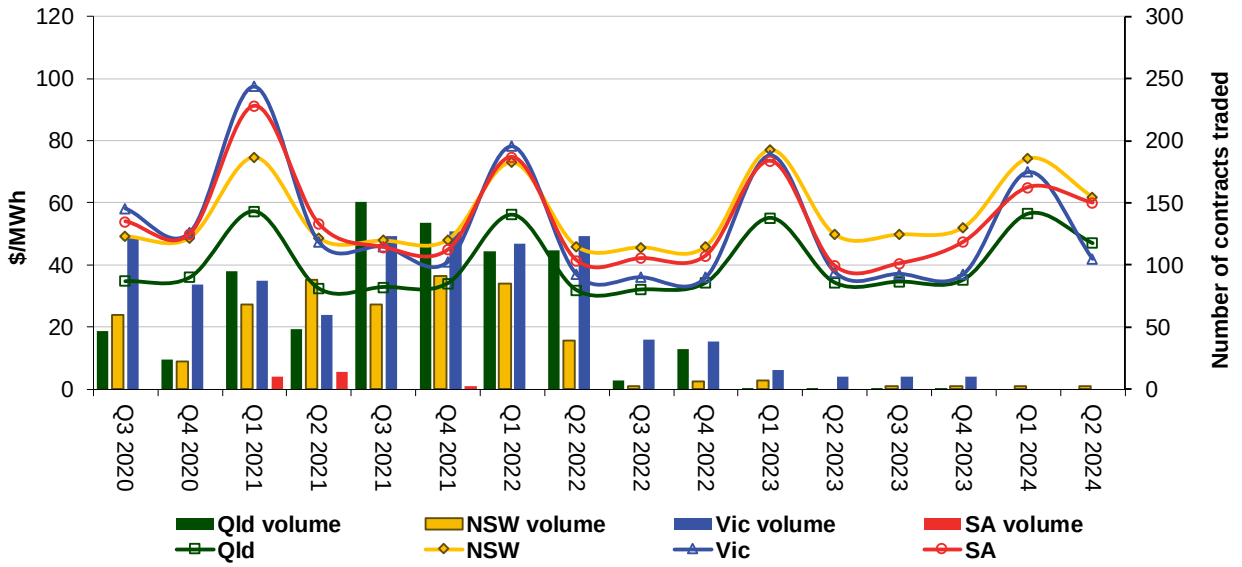
Time	Price ($/MWh)			Demand (MW)			Availability (MW)		
	Actual	4 hr forecast	12 hr forecast	Actual	4 hr forecast	12 hr forecast	Actual	4 hr forecast	12 hr forecast
5.30 am	2524.88	50.00	47.98	1188	1118	1108	2036	2083	2180

Demand was 70 MW higher than forecast while availability was close to forecast, four hours prior. At 5.25 am, a constraint relating to the minimum requirement quantity of Tasmanian raise 5 minute FCAS violated, causing the co-optimisation between energy and FCAS markets. As a result, at 5.25 am, the dispatch price for energy was set at $14 506/MWh.

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.

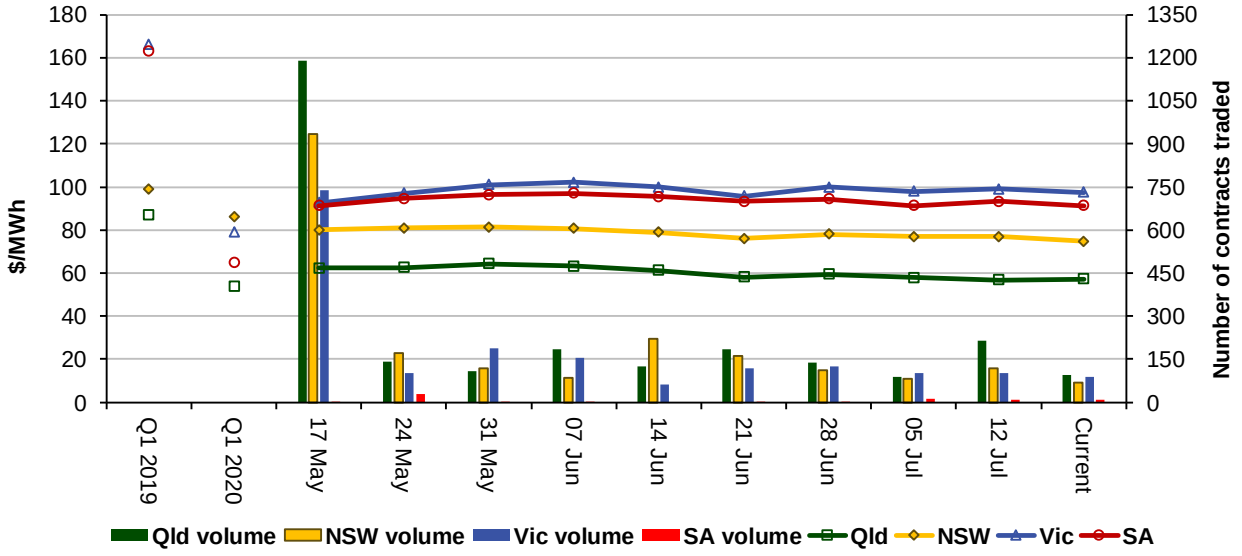
Figure 9: Quarterly base future prices Q3 2020 – Q2 2024



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)

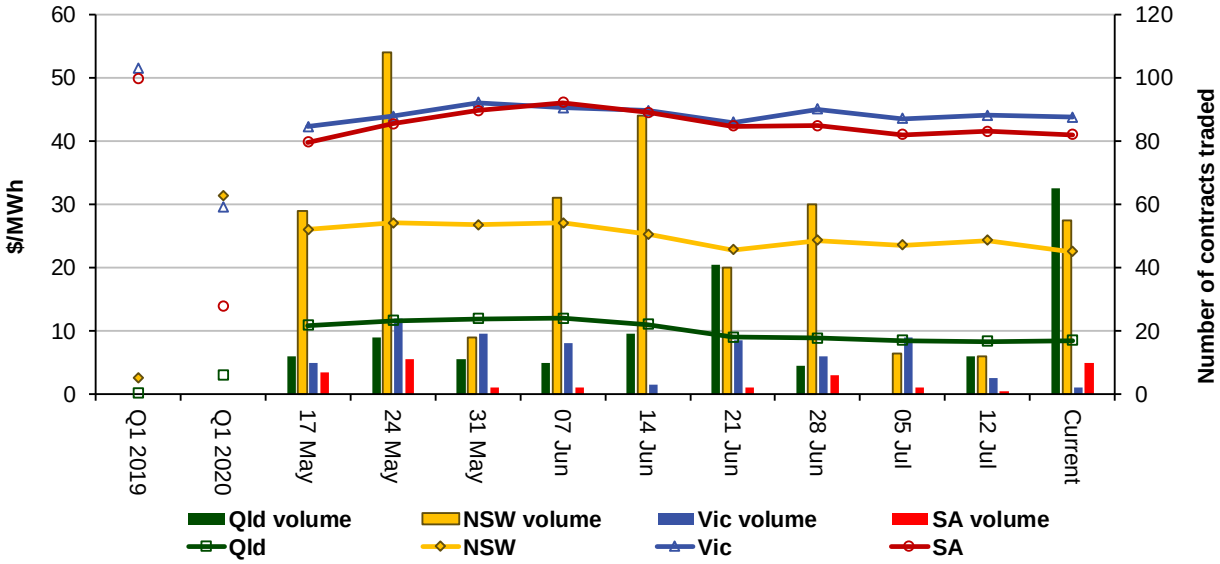


Note. Base contract prices are shown for each of the current week and the previous 9 weeks, with average prices shown for periods 1 and 2 years prior to the current year.

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 2019 and Q1 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
August 2020