Electricity Report

AUSTRALIAN ENERGY REGULATOR

8 – 14 September 2019

Introduction

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 8 to 14 September 2019.

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

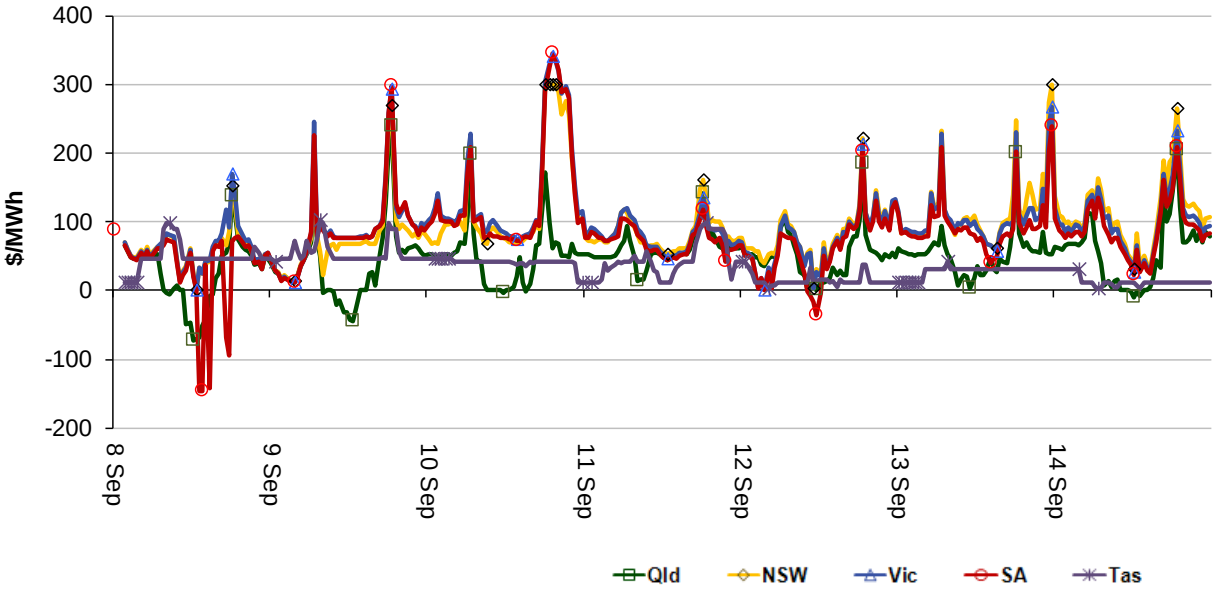


Figure 2 shows the volume weighted average (VWA) prices for the current week (with prices shown in Table 1) and the preceding 12 weeks, as well as the VWA price over the previous 3 financial years.

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

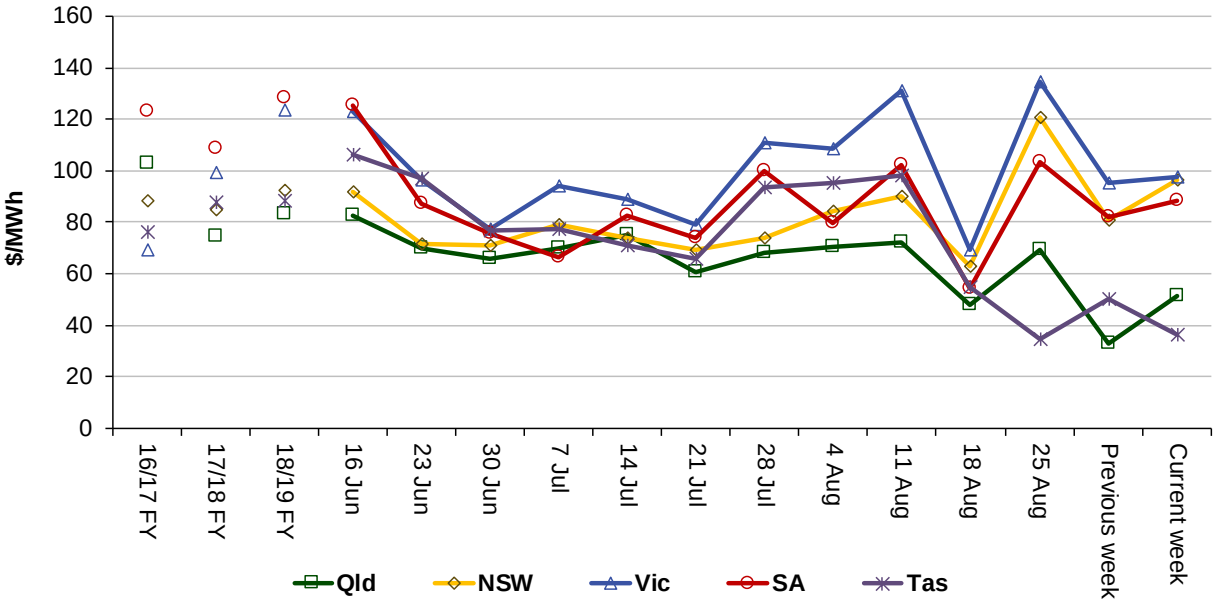


Table 1: Volume weighted average spot prices by region ($/MWh)

Region	Qld	NSW	Vic	SA	Tas
Current week	51	96	97	89	36
18-19 financial YTD	81	91	83	95	34
19-20 financial YTD	62	82	99	83	69

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 254 trading intervals throughout the week where actual prices varied significantly from forecasts. This compares to the weekly average in 2018 of 199 counts and the average in 2017 of 185. 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	11	27	0	1
% of total below forecast	6	49	0	6

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

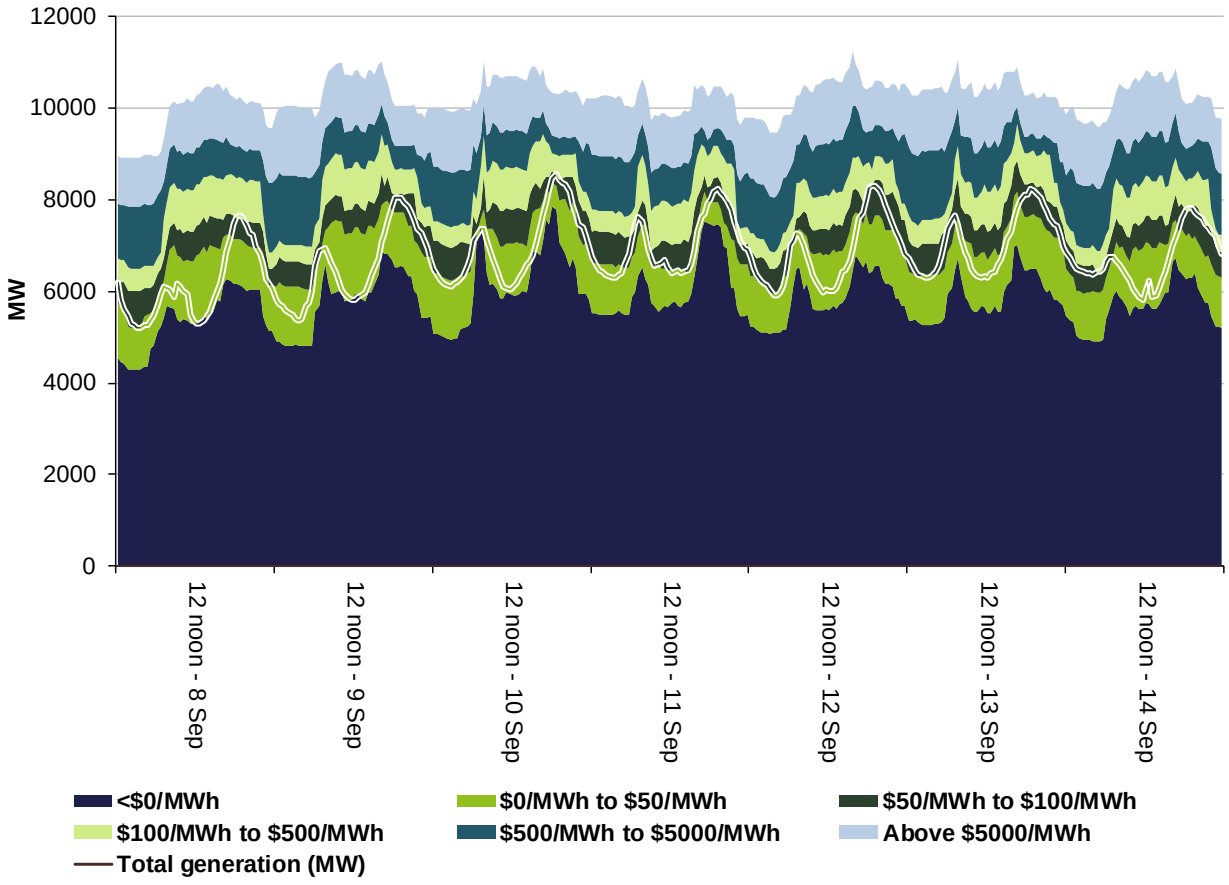


Figure 4: New South Wales generation and bidding patterns

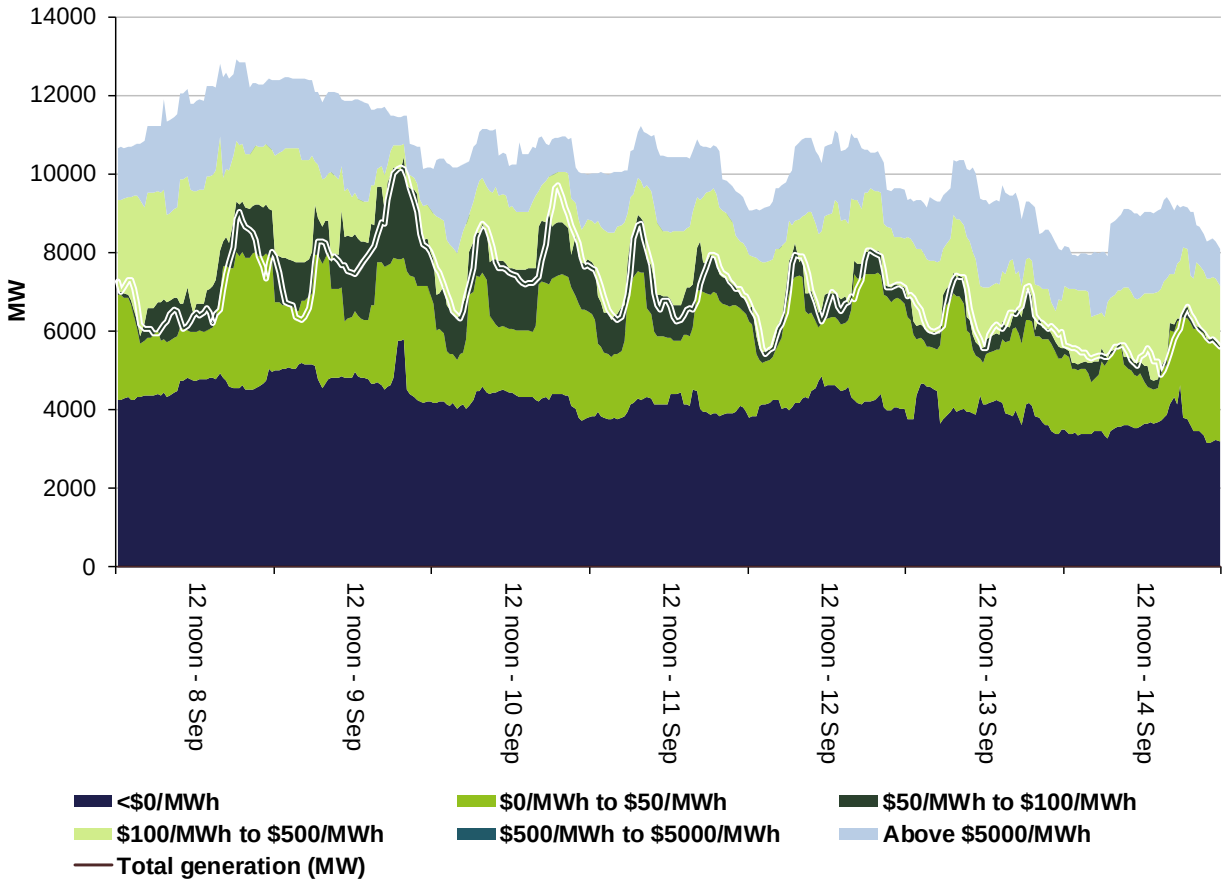


Figure 5: Victoria generation and bidding patterns

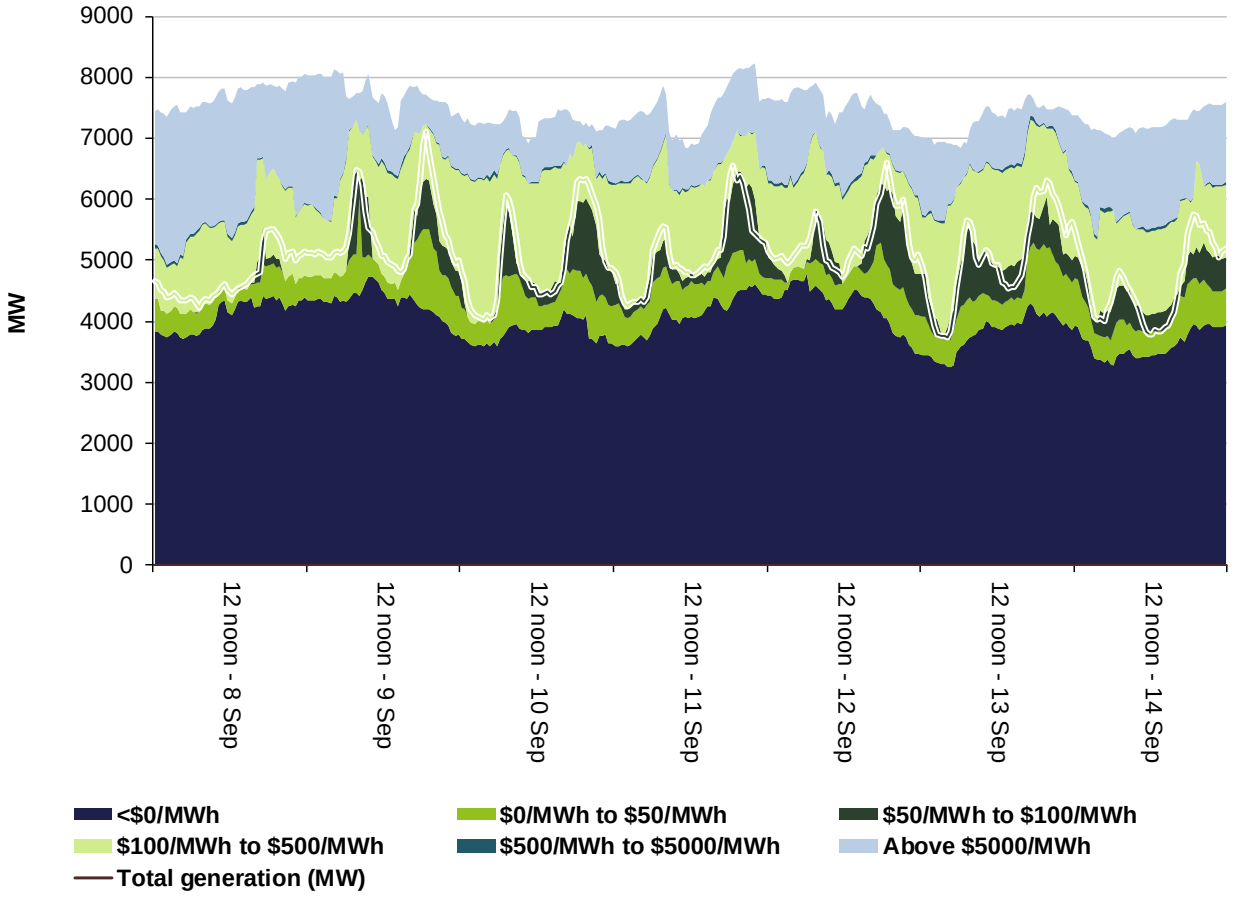


Figure 6: South Australia generation and bidding patterns

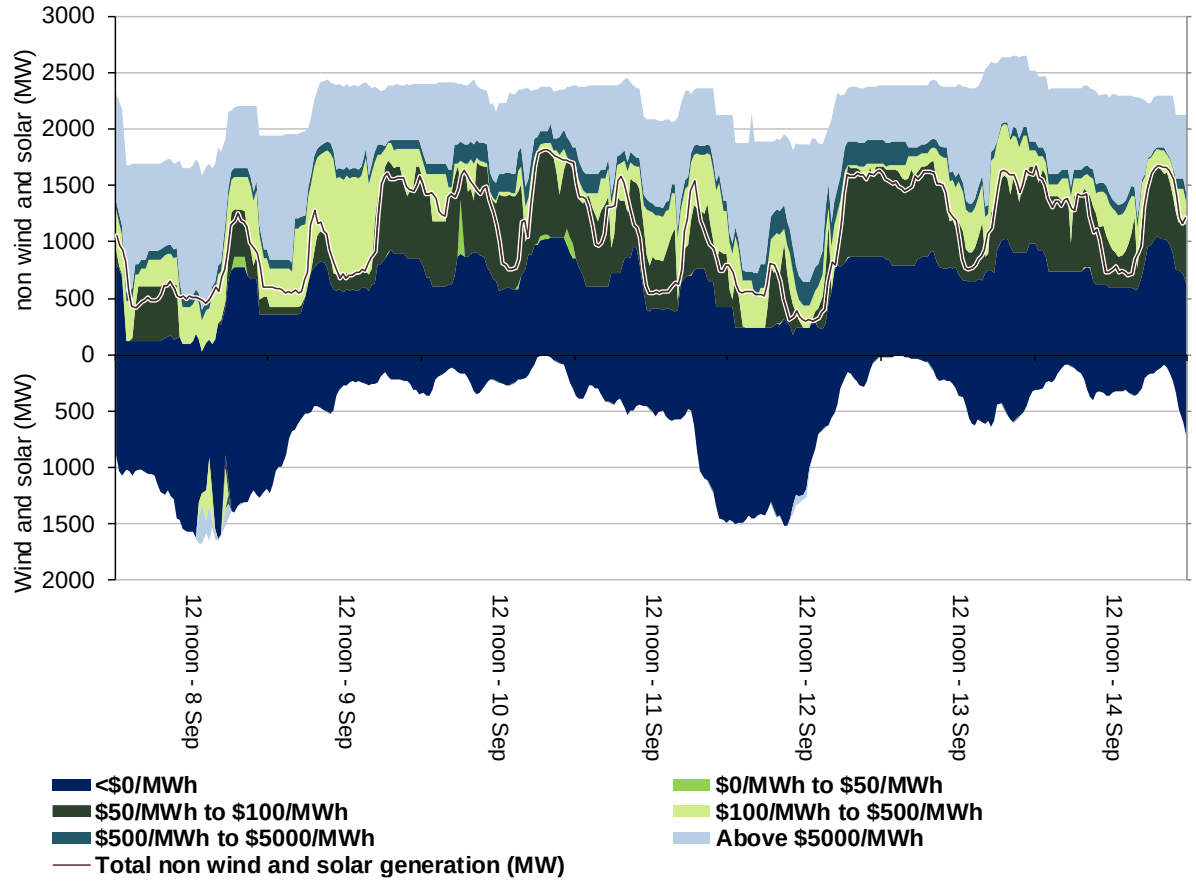
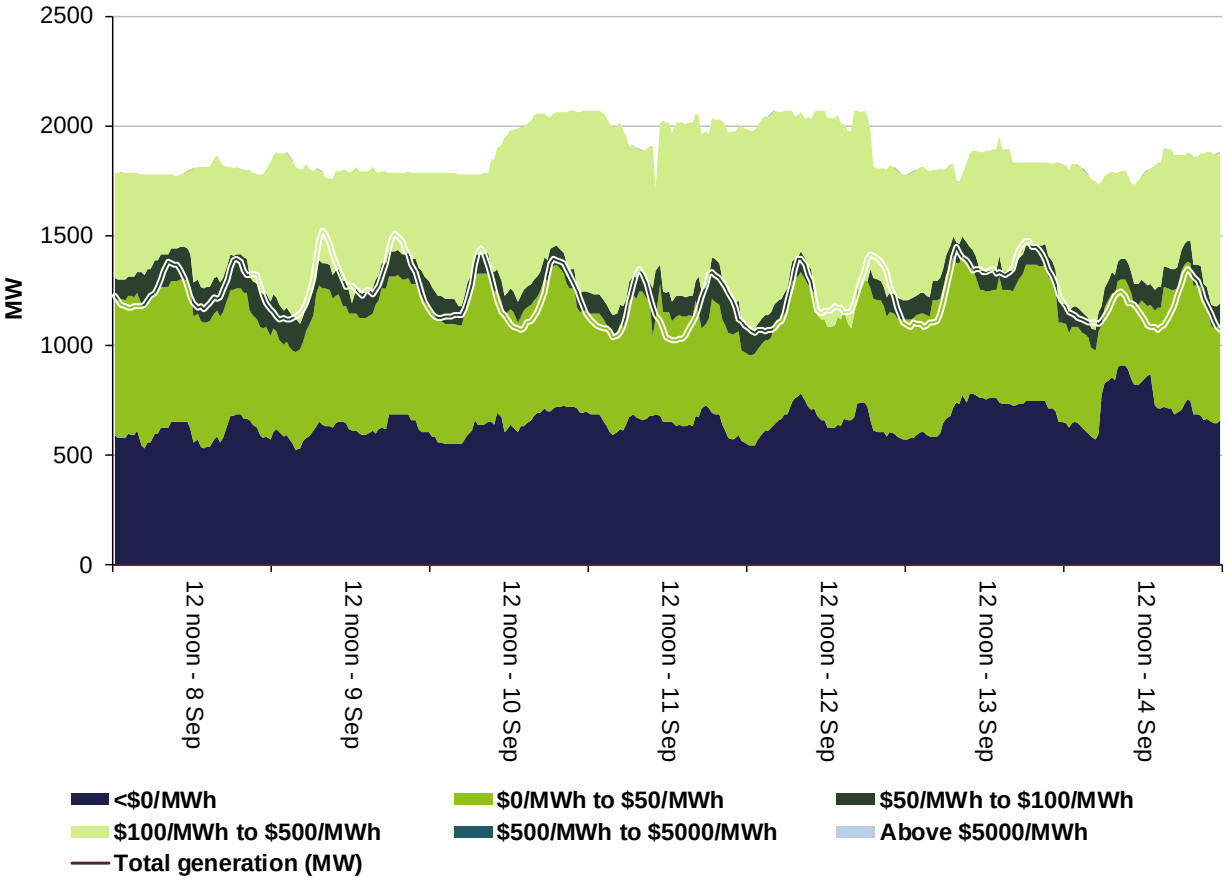


Figure 7: Tasmania generation and bidding patterns



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.

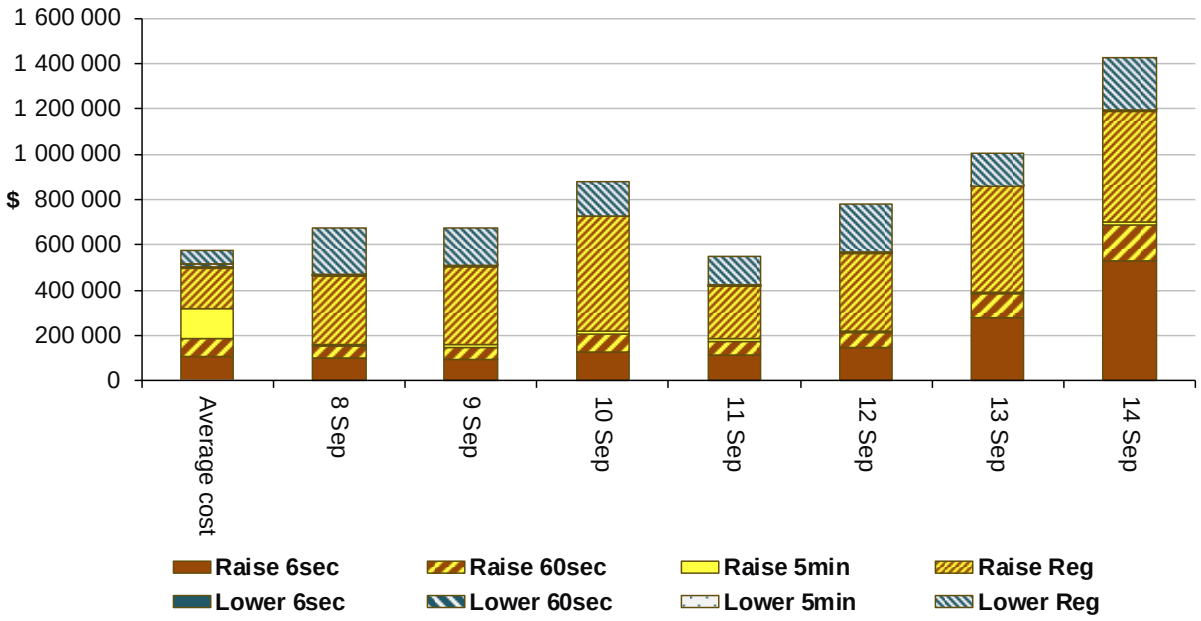
The Electricity Rules stipulate that generators pay for raise contingency services and customers pay for lower contingency services. Regulation services are paid for on a “causer pays” basis determined every four weeks by AEMO.

The total cost of FCAS on the mainland for the week was $5 533 000 or around 2 per cent of energy turnover on the mainland.

The total cost of FCAS in Tasmania for the week was $460 000 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



The high FCAS costs on 13 and 14 September was mainly due to above average raise 6 second costs on the mainland for those two days. This was a result of raise 6 second market frequently being co-optimised with the energy market when prices were high during morning and evening demand peaks.

Detailed market analysis of significant price events

New South Wales

There were six occasions where the spot price in New South Wales was greater than three times the New South Wales weekly average price of $96/MWh and above $250/MWh.

Tuesday, 10 September

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	299.60	299.60	306.74	10 310	10 167	10 280	10 874	10 958	10 901
7 pm	299.60	345.87	364.73	10 404	10 274	10 373	10 911	11 001	10 921
7.30 pm	299.60	299.60	299.60	10 242	10 148	10 233	10 928	10 983	10 912
8 pm	299.60	295.98	402.12	10 049	9952	10 043	10 963	10 979	10 900
8.30 pm	290.29	295.01	334.03	9906	9804	9891	10 941	10 972	10 220

Prices were close to forecast, four hours prior.

Saturday, 14 September

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
Midnight	299.60	131.11	249.20	7725	7719	7730	8042	8772	8840

Demand was close to forecast while availability was 730 MW less than forecast, both four hours prior. From 9.36 pm a total of 730 MW of low priced capacity at Bayswater and Tallawarra was withdrawn due to plant issues, see Table 5 for details. These rebids resulted in price being settled around $300/MWh.

Table 5: Significant rebids

Submitted time	Participant	Station	Capacity rebid (MW)	Price from ($/MWh)	Price to ($/MWh)	Rebid reason
9.36 pm	AGL Energy	Bayswater	-70	38	N/A	2135~P~010 unexpected/plant limits~108 load/ramp variation during rts
9.46 pm	EnergyAustralia	Tallawarra	-420	<69	N/A	2145~P~adj avail unit oos
10.22 pm	AGL Energy	Bayswater	-80	38	N/A	2220~P~010 unexpected/plant limits~108 load/ramp variation during rts
10.55 pm	AGL Energy	Bayswater	-160	38	N/A	2255~P~010 unexpected/plant limits~108 load/ramp variation during rts

Victoria

There were three occasions where the spot price in Victoria was greater than three times the Victoria weekly average price of $95/MWh and above $250/MWh.

Monday, 9 September

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 pm	294.88	299.99	299.99	6984	6737	6712	7716	7675	7753

Prices were close to forecast, four hours prior.

Tuesday, 10 September

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
6.30 pm	305.54	311.02	317.79	6412	6618	6602	7276	7244	7376
7 pm	329.86	361.95	384.99	6593	6717	6725	7275	7242	7374
7.30 pm	341.74	315.46	315.21	6651	6636	6648	7202	7192	7320
8 pm	336.08	313.08	409.30	6595	6495	6501	7267	7275	7319
8.30 pm	320.59	311.70	344.59	6447	6339	6350	7235	7292	7319
9.30 pm	298.73	300.70	299.99	6089	6004	6031	7250	7309	7289

Prices were close to forecast, four hours prior.

South Australia

There were three occasions where the spot price in South Australia was greater than three times the South Australia weekly average price of $82/MWh and above $250/MWh and there were nine occasions where the spot price was below -$100/MWh.

Sunday, 8 September

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
1.30 pm	-145.75	15.98	-1000	737	717	699	3354	3051	3072
2 pm	-146.91	16.90	-1000	790	711	694	3349	3051	3075

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	-141.49	24.82	-1000	756	665	686	3320	3058	3105

For the above trading intervals, demand was between 20 MW and 91 MW higher than forecast while availability was between 262 MW and 303 MW higher than forecast, four hours prior. The additional availability was due to higher than forecast wind generation, mostly priced at the price floor. As a result, the dispatch price fell to the price floor once in each of the above trading intervals when there was a small change in either regional demand or battery load consumption.

Monday, 9 September

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
7 pm	297.86	299.77	301.49	1920	1945	1963	2596	2801	2903

Prices were close to forecast.

Tuesday, 10 September

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
6.30 pm	292.12	318.91	318.91	1670	1715	1727	2419	2449	2575
7 pm	327.42	361.68	378.94	1842	1848	1860	2399	2464	2580
7.30 pm	345.97	321.42	318.92	1909	1914	1922	2385	2451	2568
8 pm	337.07	318.92	406.05	1888	1918	1915	2388	2474	2592
8.30 pm	321.44	318.92	349.98	1873	1898	1898	2398	2512	2507
9 pm	290.17	306.28	317.89	1834	1869	1865	2405	2501	2511
9.30 pm	293.62	290.59	312.45	1784	1818	1840	2408	2533	2559
10 pm	280.19	115.00	309.93	1711	1750	1773	2417	2585	2575

From 6.30 pm to 9.30 pm, prices were close to forecast, four hours prior.

For the 10 pm trading interval, prices in New South Wales, Victoria and South Australia were aligned and this event will be analysed, taking into conditions across the three regions. Prices in New South Wales and Victoria did not breach our reporting threshold, as it did in South Australia.

Across the three regions, demand was 114 MW higher than forecast while availability was 388 MW lower than forecast, four hours prior. The reduced availability was largely a result of low priced capacity being withdrawn at Yallourn due to plant issues, this was partly offset by rebidding 138 MW of capacity to the price floor at Jeeralang but only for the last dispatch interval, see Table 11 for details. As a result prices were around $300/MWh for most of this trading interval.

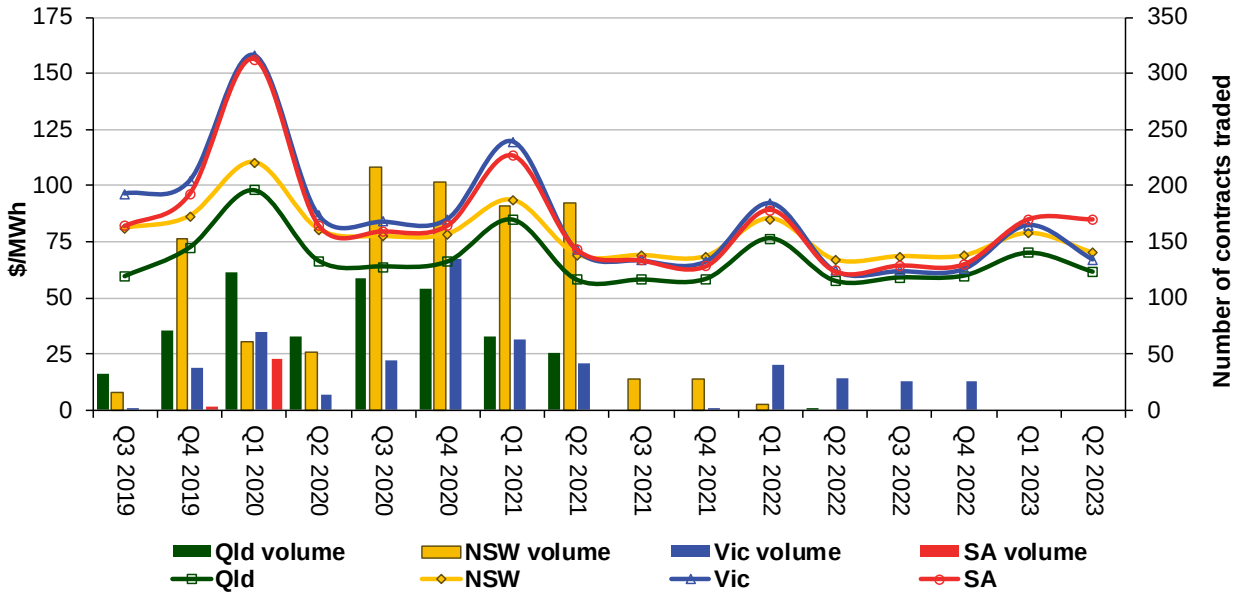
Table 11: Significant rebids for 10 pm

Submitted time	Time effective	Participant	Station	Capacity rebid (MW)	Price from ($/MWh)	Price to ($/MWh)	Rebid reason
9.13 pm		EnergyAustralia	Yallourn	-60	<25	N/A	2105~P~mill trip
9.21 pm		EnergyAustralia	Yallourn	-176	<25	N/A	2120~P~conveyor line issues
9.51 pm	10 pm	EnergyAustralia	Jeeralang A	54	14 500	-1000	2150~P~redist mw acrosdsd pfolio - yallourn conveyor issues sl~
9.51 pm	10 pm	EnergyAustralia	Jeeralang B	84	11 501	-1000	2150~P~redist mw acrosdsd pfolio - yallourn conveyor issues sl~

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.

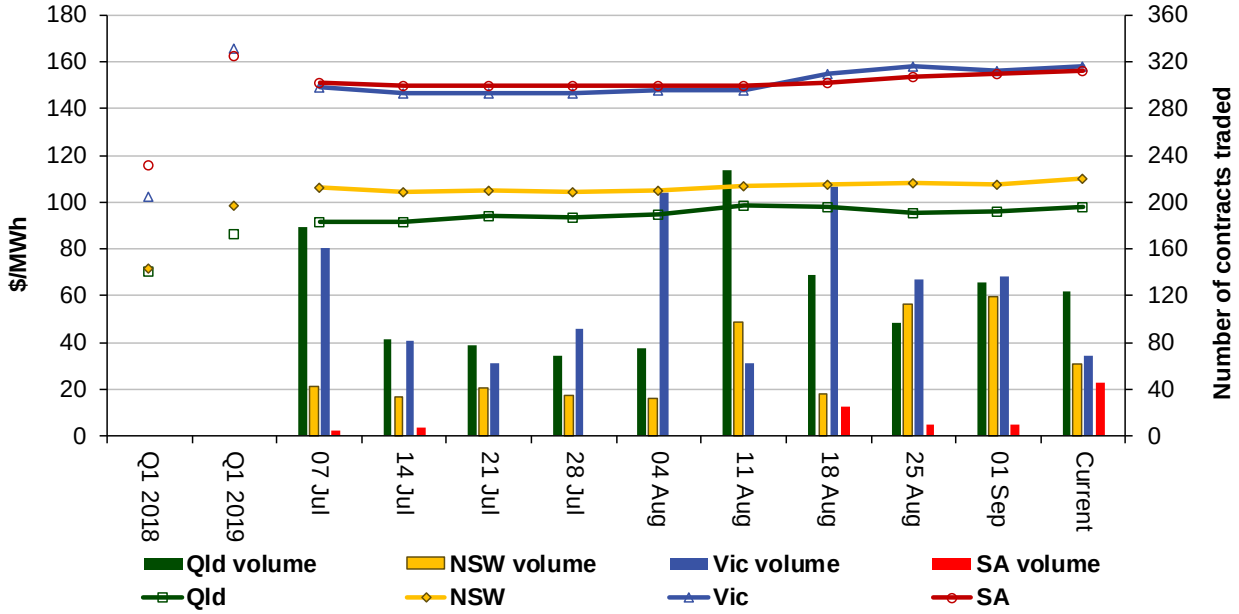
Figure 9: Quarterly base future prices Q3 2019 – Q2 2023



Source. ASXEnergy.com.au

Figure 10 shows how the price for each regional Q1 2020 base contract has changed over the last 10 weeks (as well as the total number of trades each week). The closing quarter 1 2018 and quarter 1 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 2020 base contracts over the past 10 weeks (and the past 2 years)



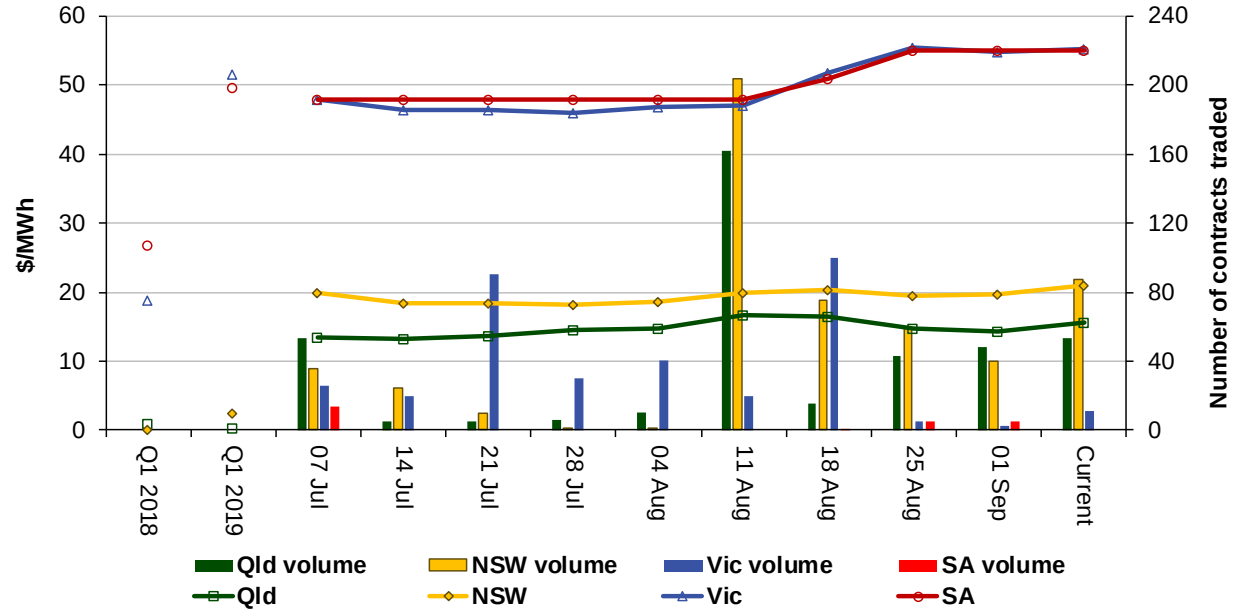
Note. Base contract prices are shown for each of the current week and the previous 9 weeks, with average prices shown for periods 1 and 2 years prior to the current year.

Source. ASXEnergy.com.au

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

Figure 11 shows how the price for each regional quarter 1 2020 cap contract has changed over the last 10 weeks (as well as the total number of trades each week). The closing quarter 1 2018 and quarter 1 2019 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