Electricity Report

AUSTRALIAN ENERGY REGULATOR

1 – 7 December 2019

Weekly Summary

Average prices for the week ranged from $33/MWh in Tasmania up to $57/MWh in Queensland and lower in all regions relative to the week prior.

There were numerous instances where AEMO reclassified the loss of network elements as reasonably possible, mostly in New South Wales due to bushfires around Bayswater and in the north-east of the region. However, this did not appear to lead to any significant impact on spot prices throughout the week.

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 1 to 7 December 2019.

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

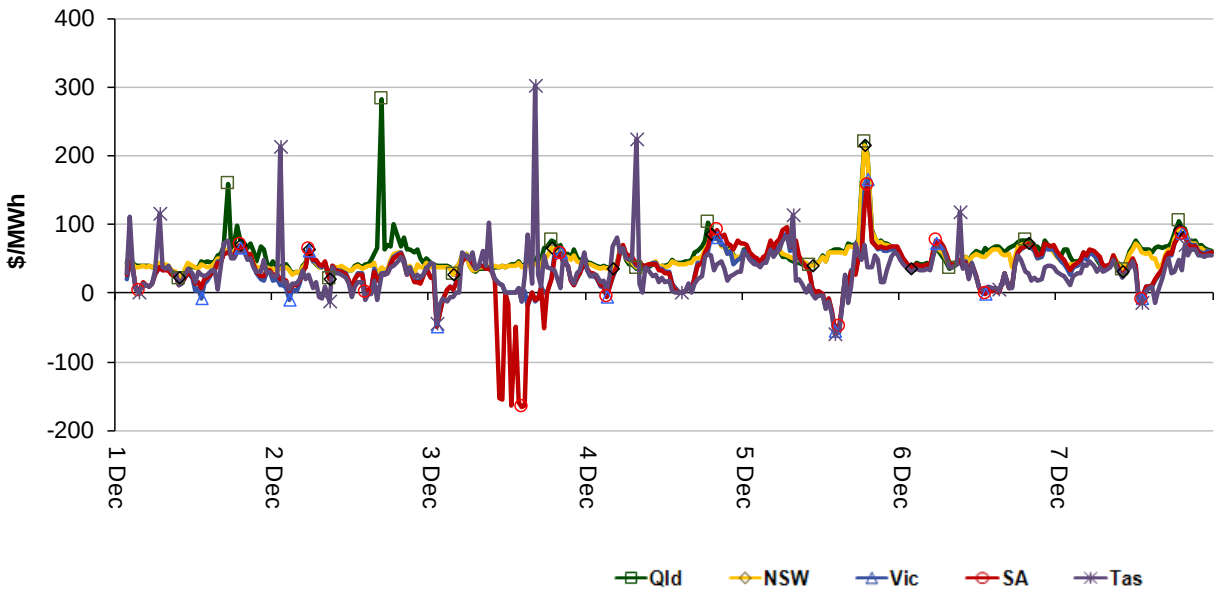


Figure 2 shows the volume weighted average (VWA) prices for the current week (with prices shown in Table 1) and the preceding 12 weeks, as well as the VWA price over the previous 3 financial years.

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

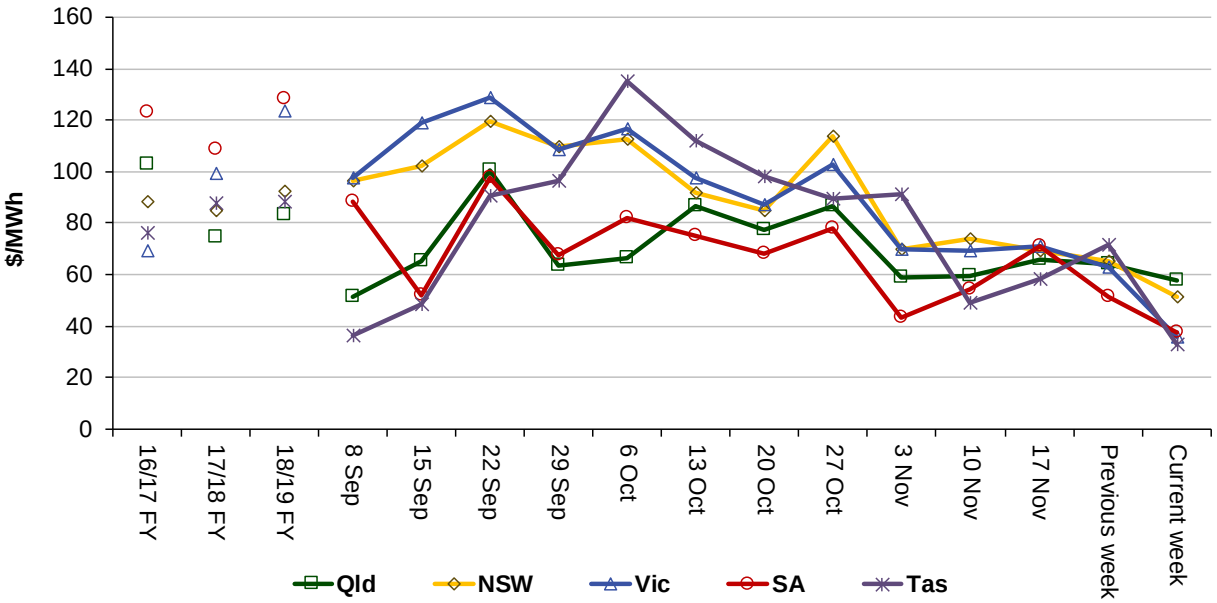


Table 1: Volume weighted average spot prices by region ($/MWh)

Region	Qld	NSW	Vic	SA	Tas
Current week	57	51	36	37	33
18-19 financial YTD	82	89	91	97	61
19-20 financial YTD	67	85	95	74	75

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 235 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	9	33	0	3
% of total below forecast	12	35	0	8

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

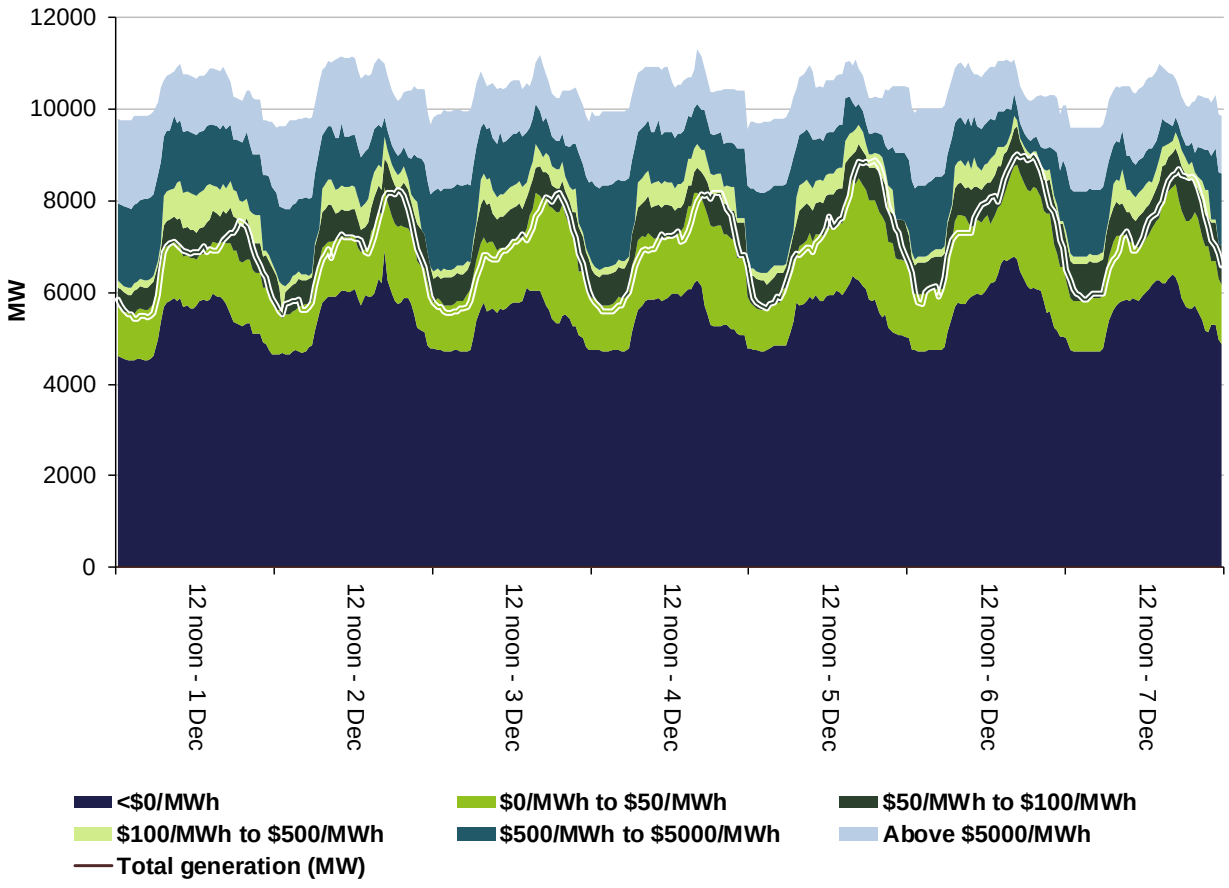


Figure 4: New South Wales generation and bidding patterns

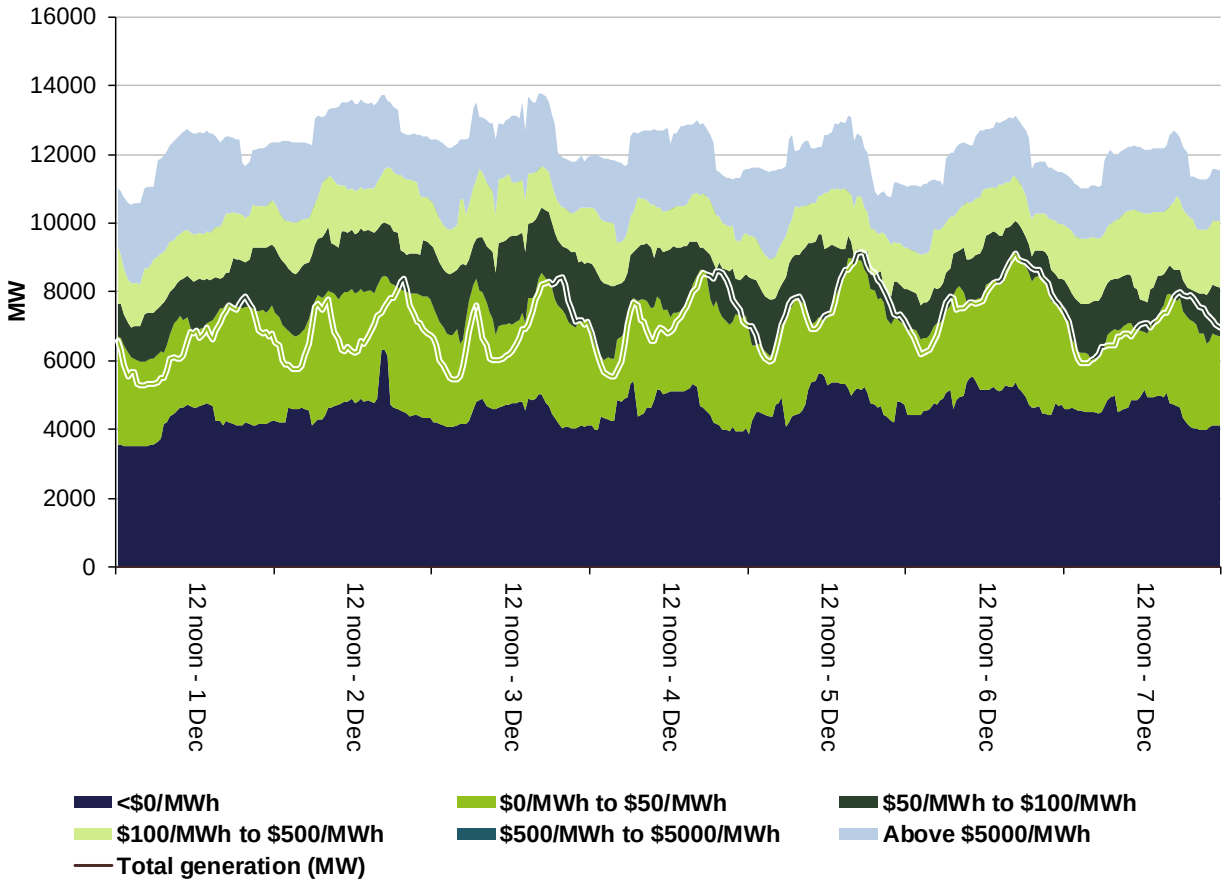


Figure 5: Victoria generation and bidding patterns

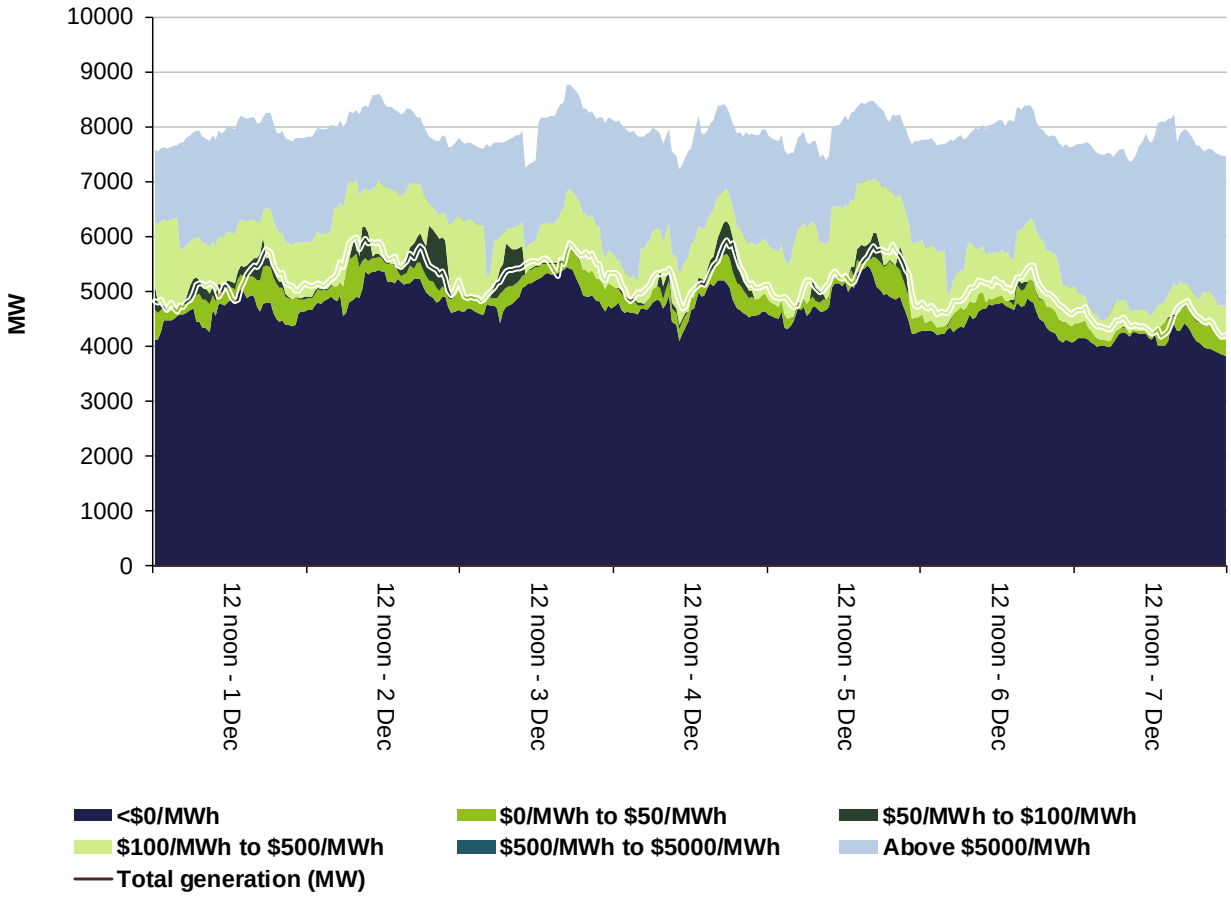


Figure 6: South Australia generation and bidding patterns

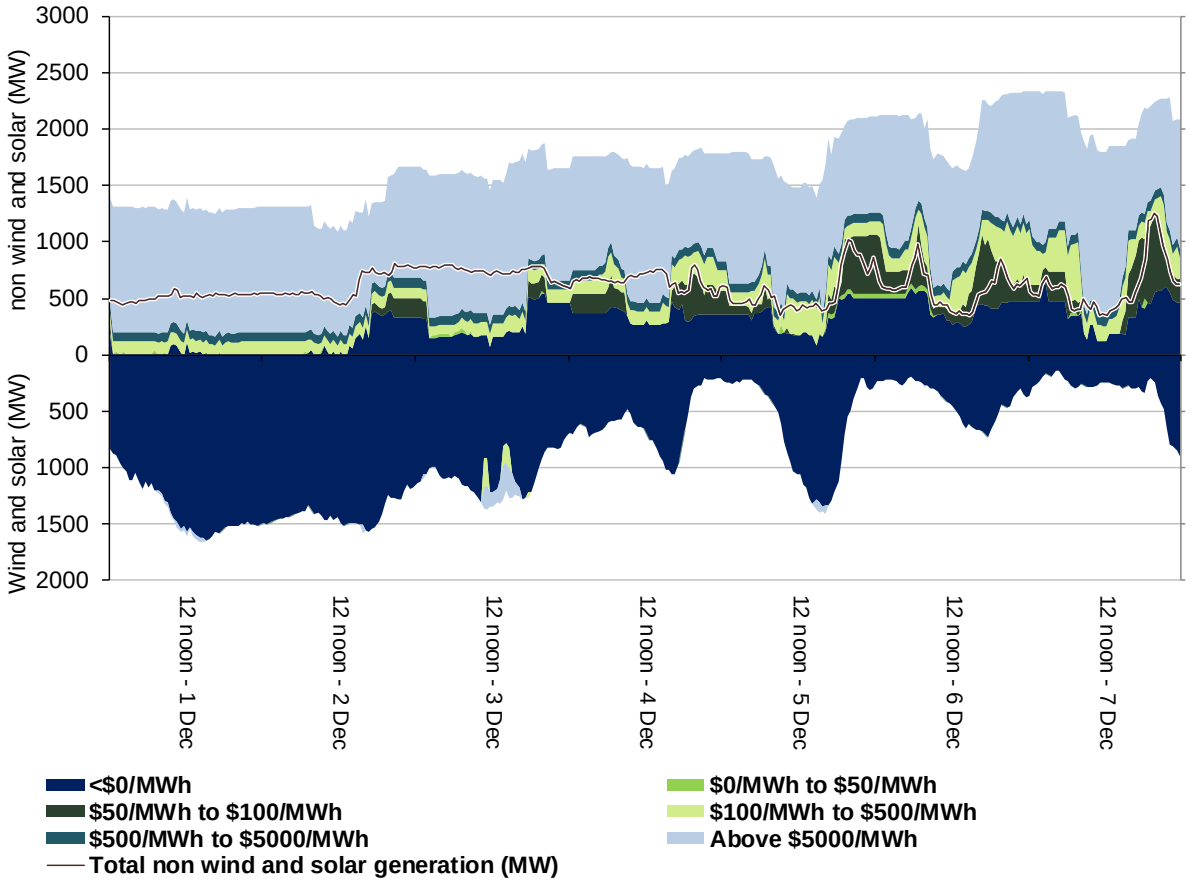
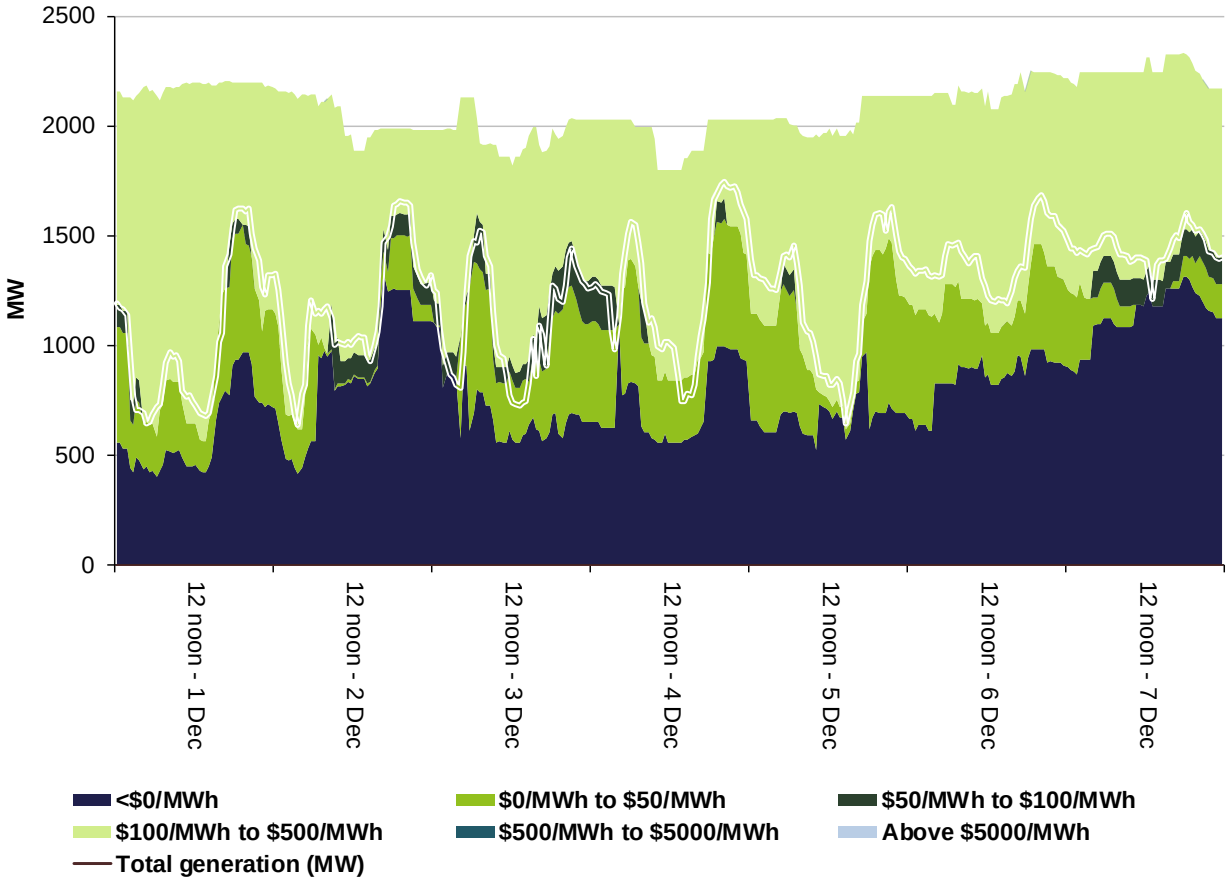


Figure 7: Tasmania generation and bidding patterns



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.

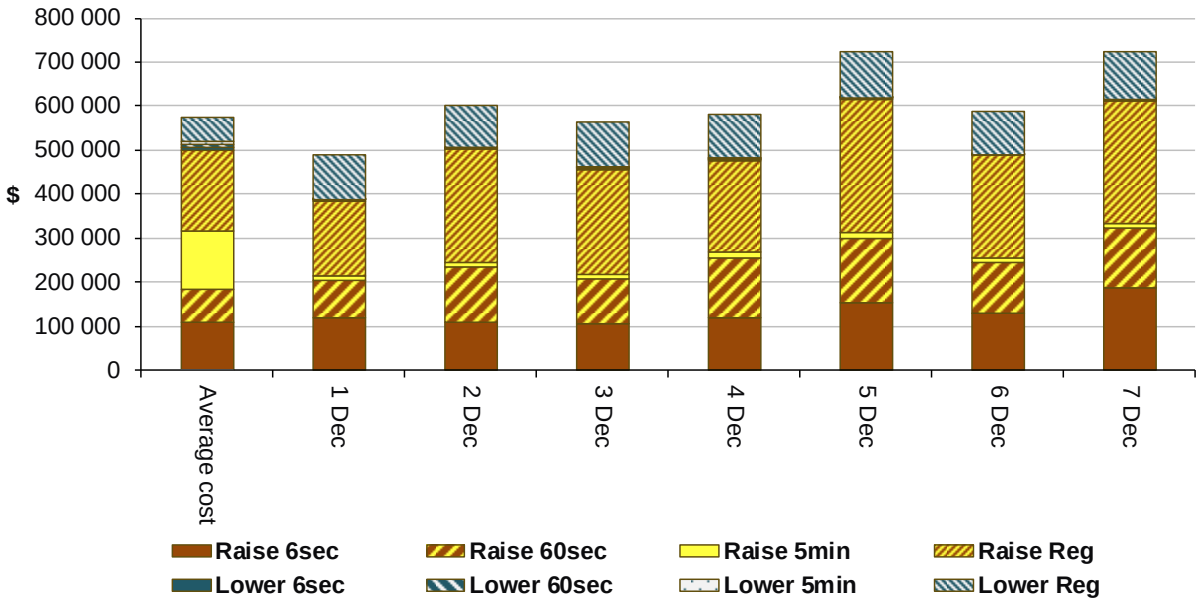
The Electricity Rules stipulate that generators pay for raise contingency services and customers pay for lower contingency services. Regulation services are paid for on a "causer pays" basis determined every four weeks by AEMO.

The total cost of FCAS on the mainland for the week was $3 639 500 or around 2 per cent of energy turnover on the mainland.

The total cost of FCAS in Tasmania for the week was $632 000 or around 11 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

At times, AEMO may need to override the normal dispatch process to maintain system security. For all the trading intervals discussed in this section, AEMO had directed a gas plant in South Australia, triggering an intervention event. Special pricing arrangements apply for all regions following an intervention in the market.

Queensland

There was one occasion where the spot price in Queensland was greater than three times the Queensland weekly average price of $57/MWh and above $250/MWh.

Monday, 2 December

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
5 pm	282.48	76.99	67.99	8369	8543	8517	10 940	11 218	11 261

At 4.40 pm, demand increased by around 100 MW and with cheaper priced generation either ramp up-constrained, unable to start up in time or trapped in FCAS and unable to set price, the price increased to $1412/MWh for one dispatch interval.

Tasmania

There was one occasion where the spot price in Tasmania was greater than three times the Tasmania weekly average price of $33/MWh and above $250/MWh.

Tuesday, 3 December

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
4.30 pm	301.57	9.08	30.40	1119	1060	1070	1917	2027	2172

Demand was around 59 MW higher than forecast and availability was 110 MW lower than forecast, four hours prior. With cheaper priced generation trapped in FCAS and unable to set price, the higher than forecast demand along with the special pricing arrangements imposed by intervention, caused the dispatch price to reach up to $400/MWh throughout the trading interval.

South Australia

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

Tuesday, 3 December

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
11 am	-153.40	8.39	-1000	897	737	734	2922	2657	2710
11.30 am	-156.18	1.13	-1000	865	695	690	2915	2671	2729
1 pm	-164.79	-151.85	-1000	680	609	610	2850	2705	2784
2 pm	-158.97	-151.85	-1000	661	611	604	2813	2702	2770
2.30 pm	-166.09	-151.85	-1000	644	619	592	2804	2779	2834
3 pm	-164.13	-3.09	-1000	678	623	602	2965	2911	2919

Availability was higher than forecast, four hours prior due to higher than forecast wind generation.

For the 11 am and 11.30 am trading intervals, demand and interconnector flows fell by up to 80 MW in one dispatch interval. With no generation priced between the forecast price and the price floor, the dispatch price fell to the price floor once in each trading interval.

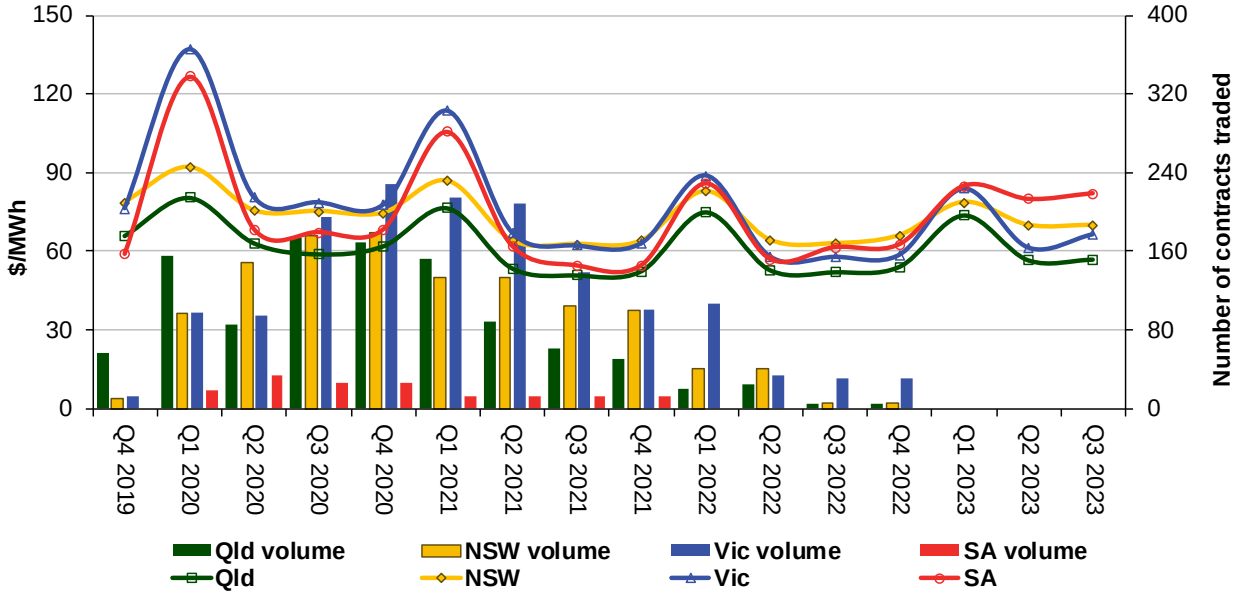
For the 1 pm, 2 pm and 2.30 pm trading intervals, prices were close to forecast four hours prior.

For the 3 pm trading interval, higher than forecast wind generation, mostly priced at the price floor, caused dispatch price to fall to -$1000/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.

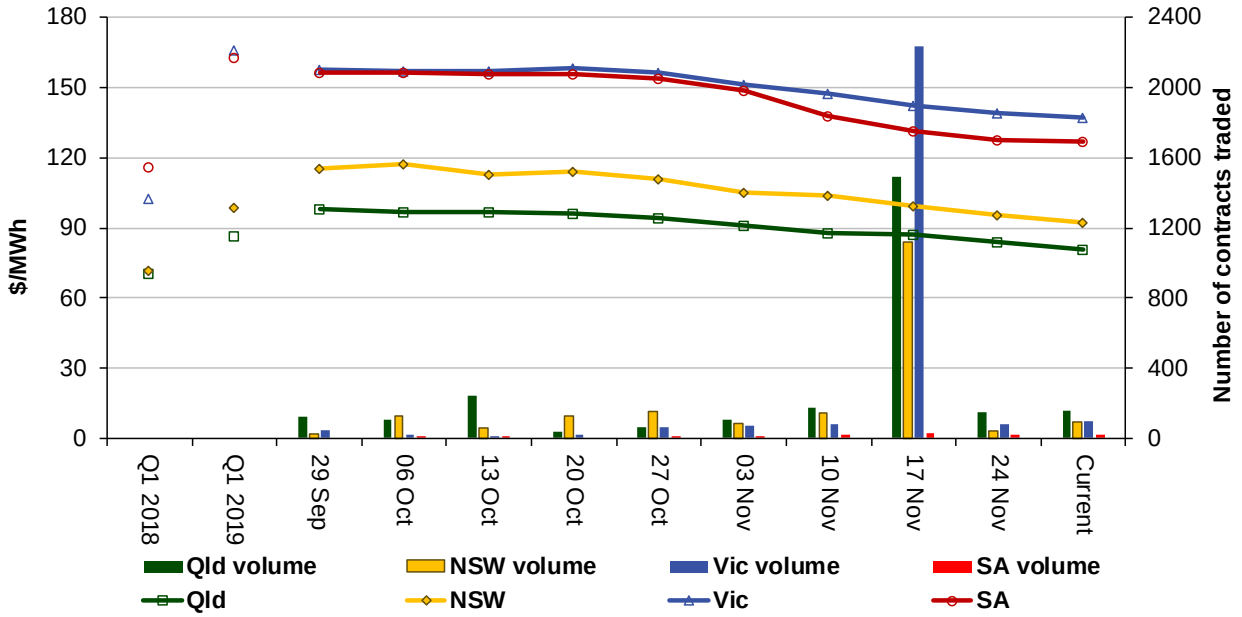
Figure 9: Quarterly base future prices Q4 2019 – Q3 2022



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)

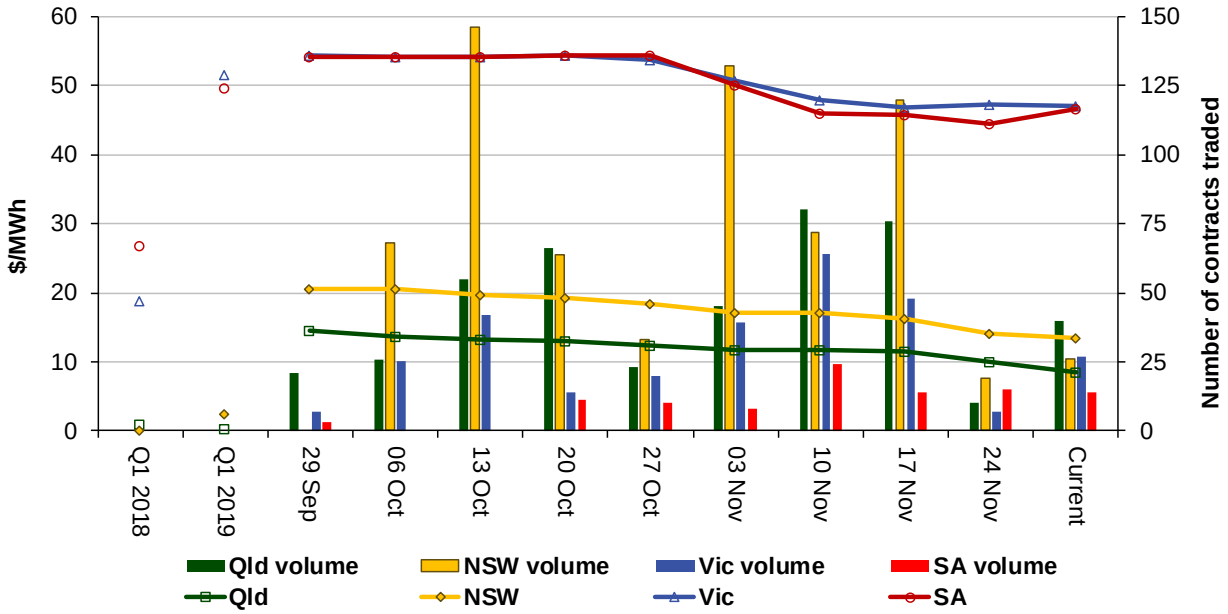


Note. Base contract prices are shown for each of the current week and the previous 9 weeks, with average prices shown for periods 1 and 2 years prior to the current year.

Source. ASXEnergy.com.au

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

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

Australian Energy Regulator
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