Electricity Report

AUSTRALIAN ENERGY REGULATOR

30 December 2018 – 5 January 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 30 December 2018 to 5 January 2019.

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

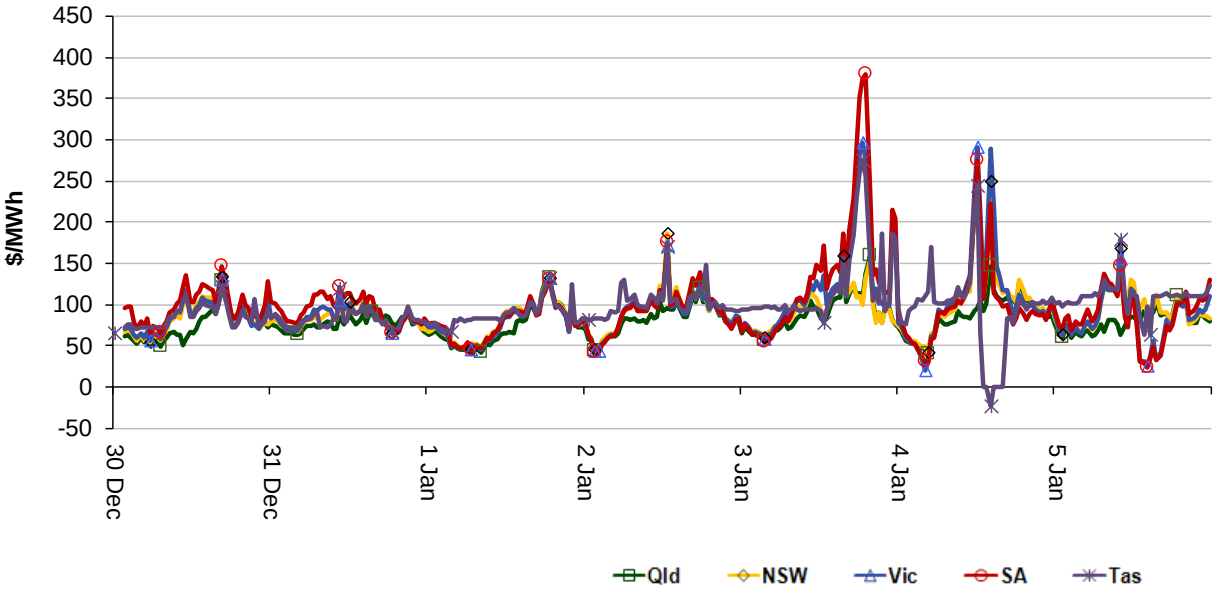


Figure 2 shows the volume weighted average (VWA) prices for the current week (with prices shown in Table 1) and the preceding 12 weeks, as well as the VWA price over the previous 3 financial years.

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

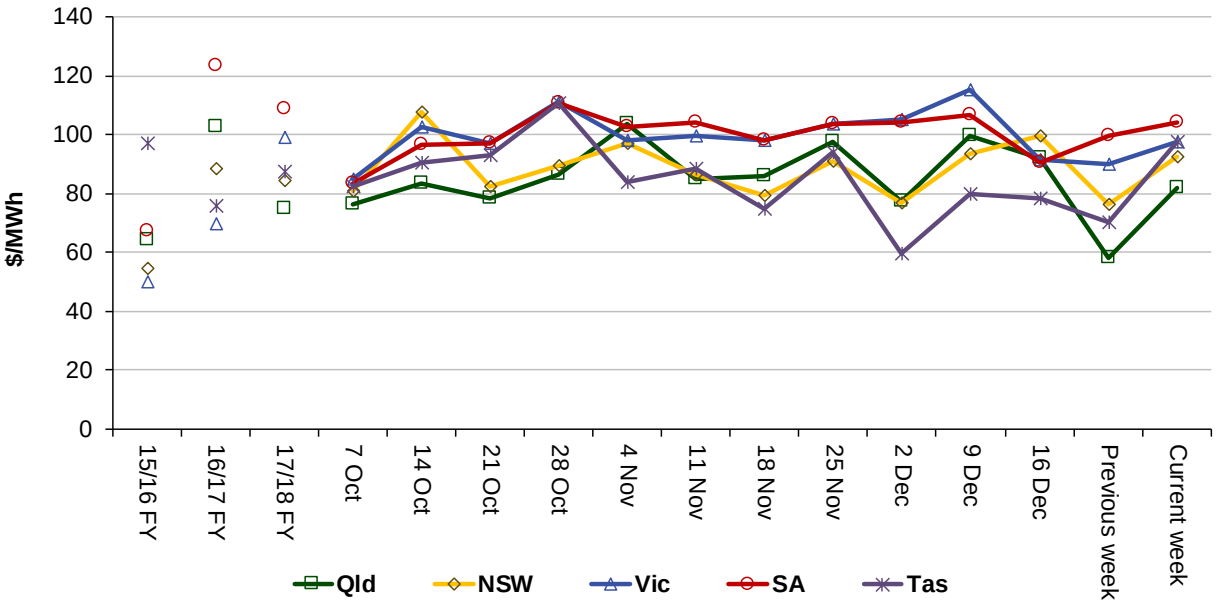


Table 1: Volume weighted average spot prices by region ($/MWh)

Region	Qld	NSW	Vic	SA	Tas
Current week	82	93	98	104	98
17-18 financial YTD	77	88	96	94	91
18-19 financial YTD	83	89	92	98	63

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 154 trading intervals throughout the week where actual prices varied significantly from forecasts. This compares to the weekly average in 2017 of 185 counts and the average in 2016 of 273. 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	5	44	0	4
% of total below forecast	12	28	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

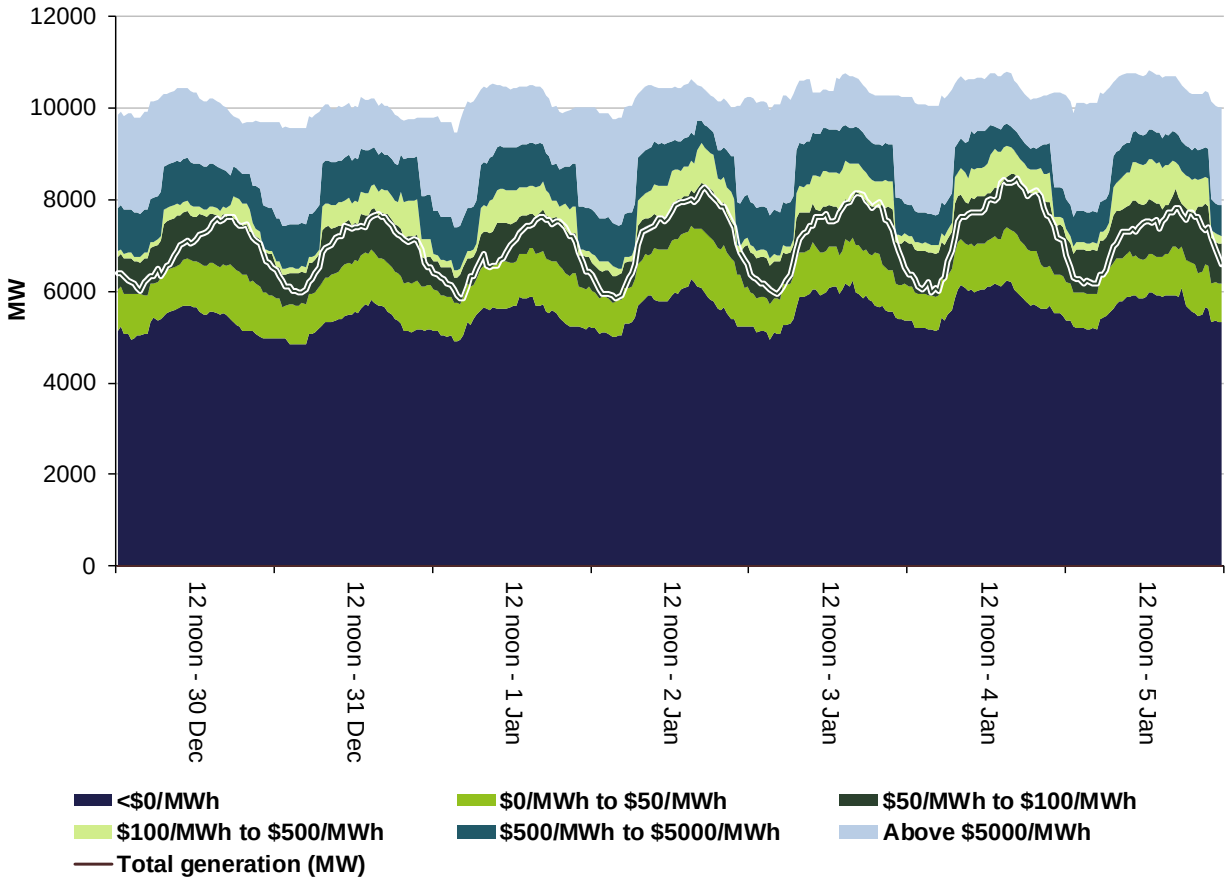


Figure 4: New South Wales generation and bidding patterns

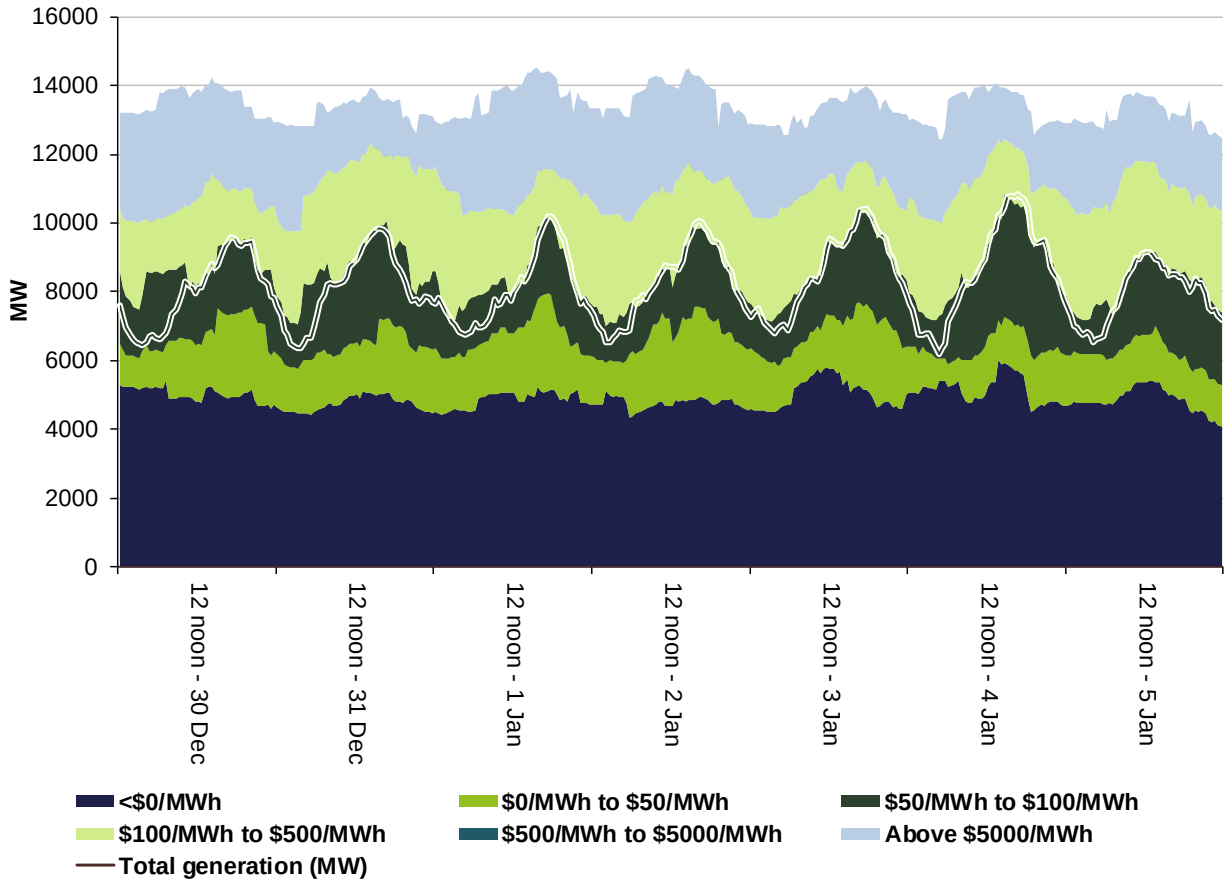


Figure 5: Victoria generation and bidding patterns

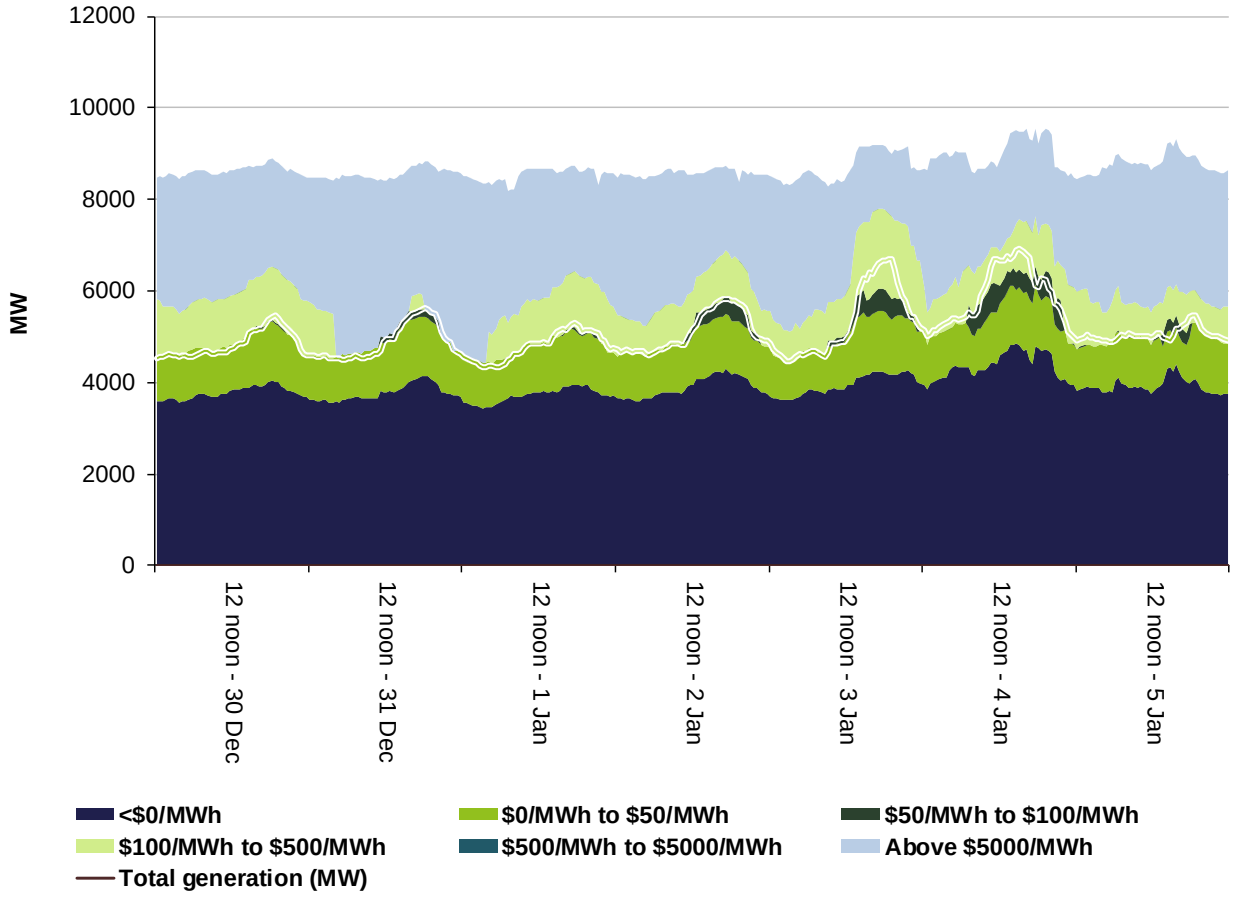


Figure 6: South Australia generation and bidding patterns

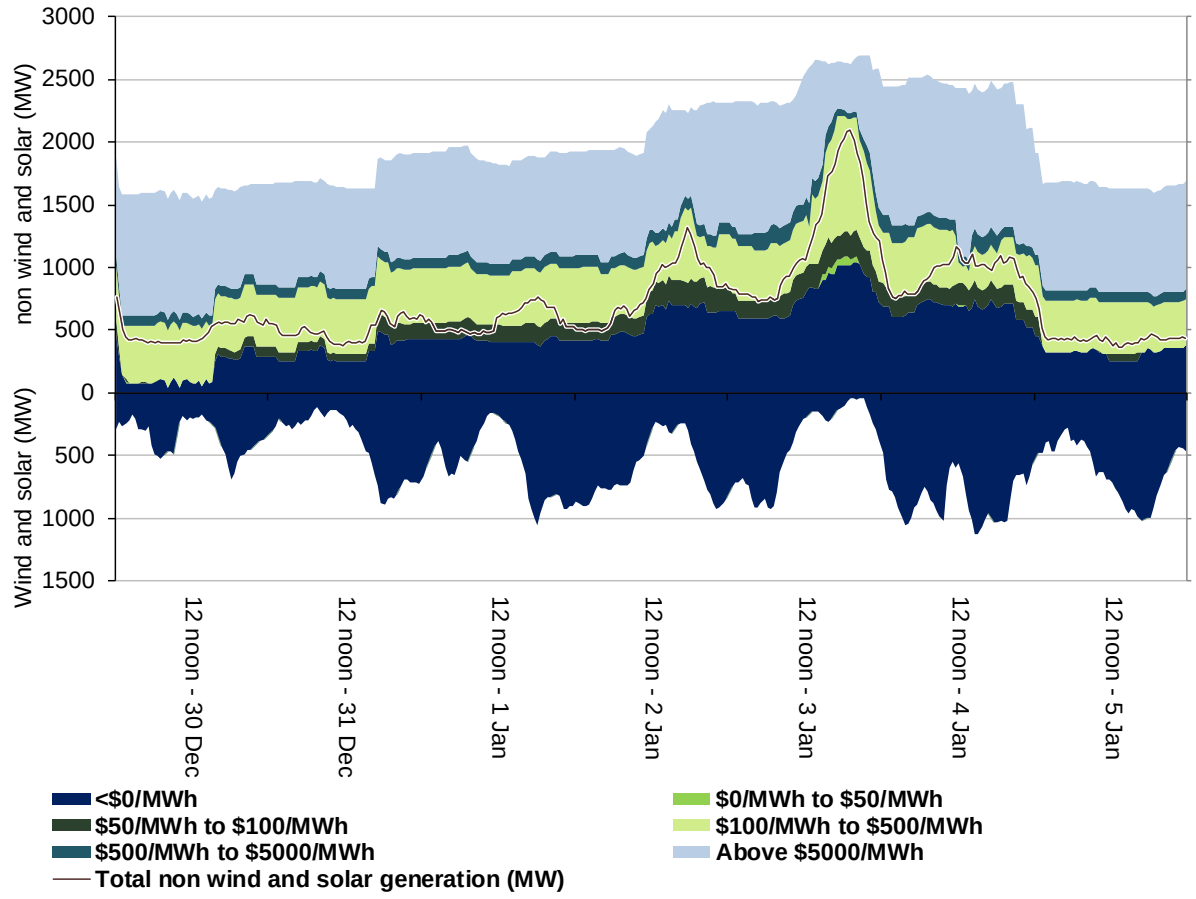
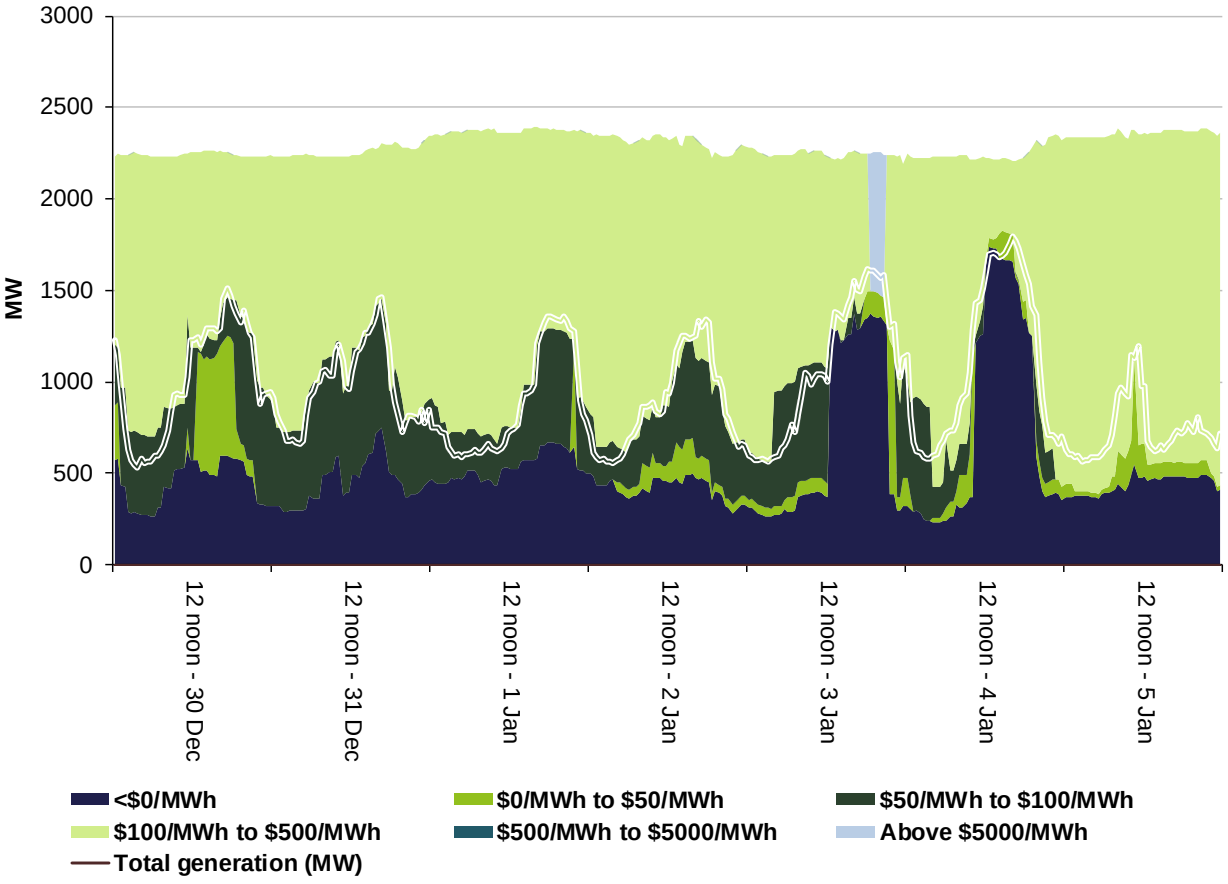


Figure 7: Tasmania generation and bidding patterns



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.

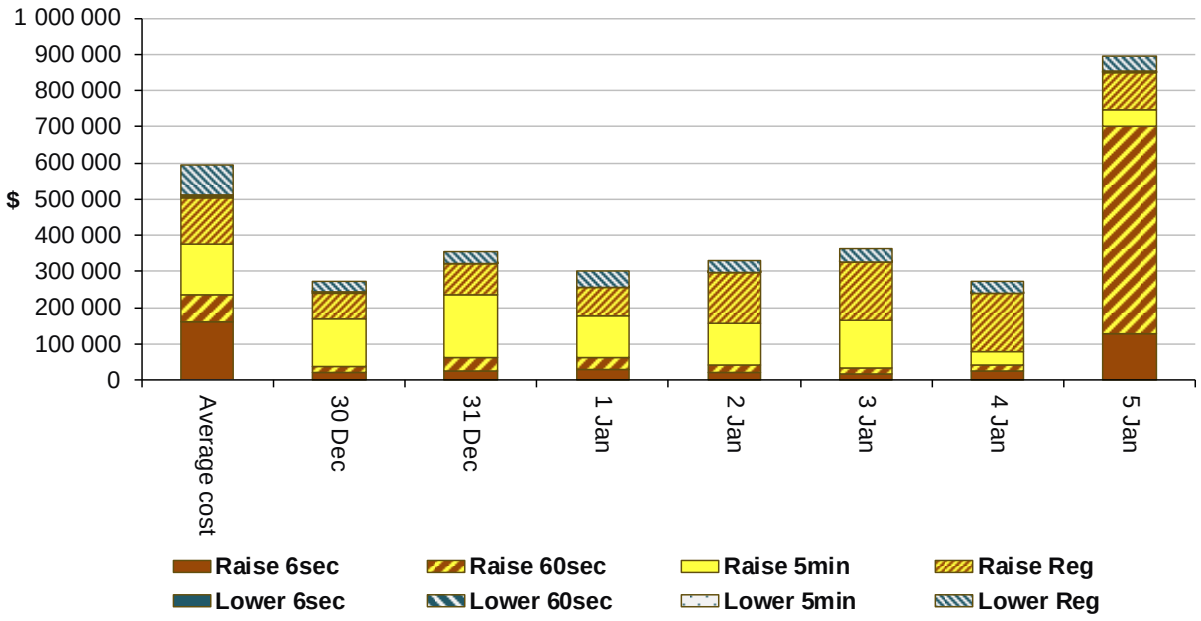
The Electricity Rules stipulate that generators pay for raise contingency services and customers pay for lower contingency services. Regulation services are paid for on a "causer pays" basis determined every four weeks by AEMO.

The total cost of FCAS on the mainland for the week was $1 793 000 or less than one per cent of energy turnover on the mainland.

The total cost of FCAS in Tasmania for the week was $998 500 or less than six 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 5 January, the Tasmanian raise 60 second price increased from $5/MW at 8.30 am to $14 000/MW at 8.35 am. This was due to a step change in raise 60 second offers (set up from the previous day). The prices stayed high until 8.55 am when Hydro Tasmania rebids all raise 60 second capacity from $14 000/MW to below $10/MW. The price stayed below $10/MW for the rest of the day.

Detailed market analysis of significant price events

Victoria

There was one occasion where the spot price in Victoria was greater than three times the Victoria weekly average price of $98/MWh and above $250/MWh.

Thursday, 3 January

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
7 pm	297.02	184.38	371.50	6489	6147	6216	8996	8964	8968

Demand was 342 MW higher than forecast while availability was close to forecast, both four hours prior. This increase in demand was partly offset by net export from Victoria being 153 MW lower than forecast.

These conditions resulted in dispatch prices being set further up the supply curve by around 150 MW. With no availability offered between $190/MWh and $250/MWh, dispatch prices were settled between $278/MWh and $311/MWh for the entire trading interval.

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 $104/MWh and above $250/MWh.

Thursday, 3 January

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
6.30 pm	352.01	418.81	12 130.74	2757	2841	2782	2756	2750	2789
7 pm	374.40	418.81	12 162.40	2768	2813	2764	2727	2737	2767
7.30 pm	379.86	379.98	1750.02	2752	2743	2715	2697	2722	2763

For all three trading intervals, demand and availability were both close to forecast. Actual spot prices were less than both four hour forecast and 12 hour forecast mainly due to significant amounts of capacity rebid from high to low prices.

Between the four hour forecast and 12 hour forecasts for all three trading intervals, 230 MW of capacity was rebid from prices at or above $14 000/MWh to less than $419/MWh. Within four hour forecast period for all three trading intervals, additional capacity was rebid from above $419/MWh to less than $369/MWh, see significant rebid table below for more details. Rows below highlighted in blue were those made within the four and12 hour forecast periods. Rows in white were made within the four hour forecast period.

Table 5: Significant rebids

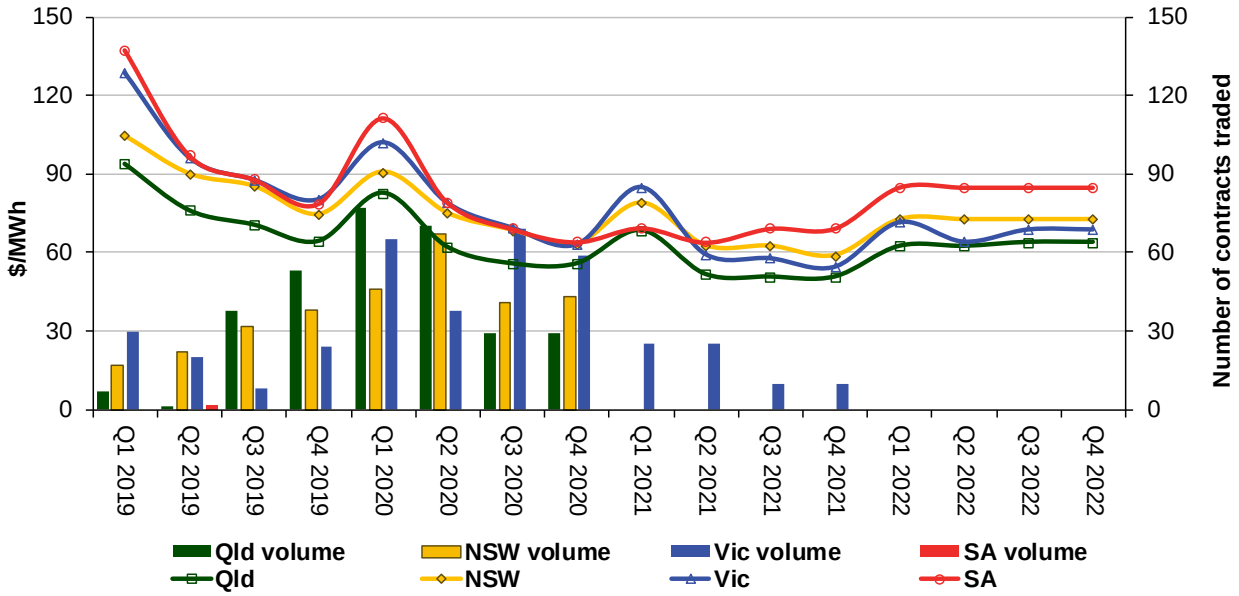
Submit time	Effective trading interval	Participant	Station	Capacity rebid (MW)	Price from ($/MWh)	Price to ($/MWh)	Rebid reason
11.32 am	6.30 pm, 7 pm	Origin Energy	Ladbroke	76	14 500	-1000	1131A inc sa dem 5pd 1756 mw > 30pd 1658mw @ 1200 sl
11.32 am	7.30 pm	Origin Energy	Ladbroke	78	14500	-1000	1131A inc sa dem 5pd 1756 mw > 30pd 1658mw @ 1200 sl
12.30 pm	6.30pm, 7 pm	Origin Energy	Quarantine	111	14 500	<120	1226A constraint management - V.S_600_HY_TEST SL
12.30 pm	7.30pm	Origin Energy	Quarantine	112	14500	<120	1226A constraint management - V.S_600_HY_TEST SL
1.37 pm	6.30 pm, 7pm, 7.30 pm	Energy Australia	Hallett	40	13 999	419	1310~A~adj bamds, mat change in sa rrp @ HHE 1600, +$12.78, SL
2.57 pm	6.30 pm	AGL Energy	Torrens Island	50	12 100	115	1431~A~050 chg in aemo pd~demand_and_nonschedgen in vic increased by avg 158MW from 15.00 until 21.00 in the last 3 pds (13.31, 14.01 and 14.31)
3.19 pm	6.30 pm	Energy Australia	Hallett	50	>419	0	1515~A~band adj due to mat change in sa 5min pd price $320.00 VS $149.30 @ 1555 SL~
3.19 pm	7 pm	Energy Australia	Hallett	40	419	0	1515~A~band adj due to mat change in sa 5min pd price $320.00 vs $149.30 @ 1555 sl~
3.37 pm	6.30 pm	Origin Energy	Quarantine	34	13 050	-1000	1535A inc vic dem 5pd 6182 mw > 30pd 6110 mw @ 1630 sl
3.37 pm	7 pm	Origin Energy	Quarantine	35	13 050	-1000	1535A inc vic dem 5pd 6182 mw > 30pd 6110 mw @ 1630 sl
3.37 pm	7.30 pm	Origin Energy	Quarantine	37	13050	-1000	1535A inc vic dem 5pd 6182 mw > 30pd 6110 mw @ 1630 sl
4.48 pm	6.30 pm, 7 pm, 7.30 pm	Engie	Dry Creek	38	13 100	<0	1615~A~sa pd price $224.53 > $142.56 30 mpd hhe 17.00~
4.59 pm	6.30 pm, 7 pm, 7.30 pm	Engie	Dry Creek	15	1750	-1000	1645~A~sa price $217.60 > $142.46 30mpd hhe 17.00~
5.19 pm	6.30 pm	Energy Australia	Hallett	20	>419	<279	1715~A~band adj due to mat change in sa 5min pd price $347.30 vs $157.10 @ 1740 sl~
6.11 pm	7 pm	Energy Australia	Hallett	70	>579	<369	1810~A~band adj due to mat change in sa 5min pd price $364.90 vs $180.50 @ 1845 sl~
6.11 pm	7.30 pm	Energy Australia	Hallett	100	>579	<369	1810~A~band adj due to mat change in sa 5min pd price $364.90 vs $180.50 @ 1845 sl~

Financial markets

The high volume of trades in Figure 9, 10 and 11 are due to options on calendar year base load expiring on Monday 19 November 2017.

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.

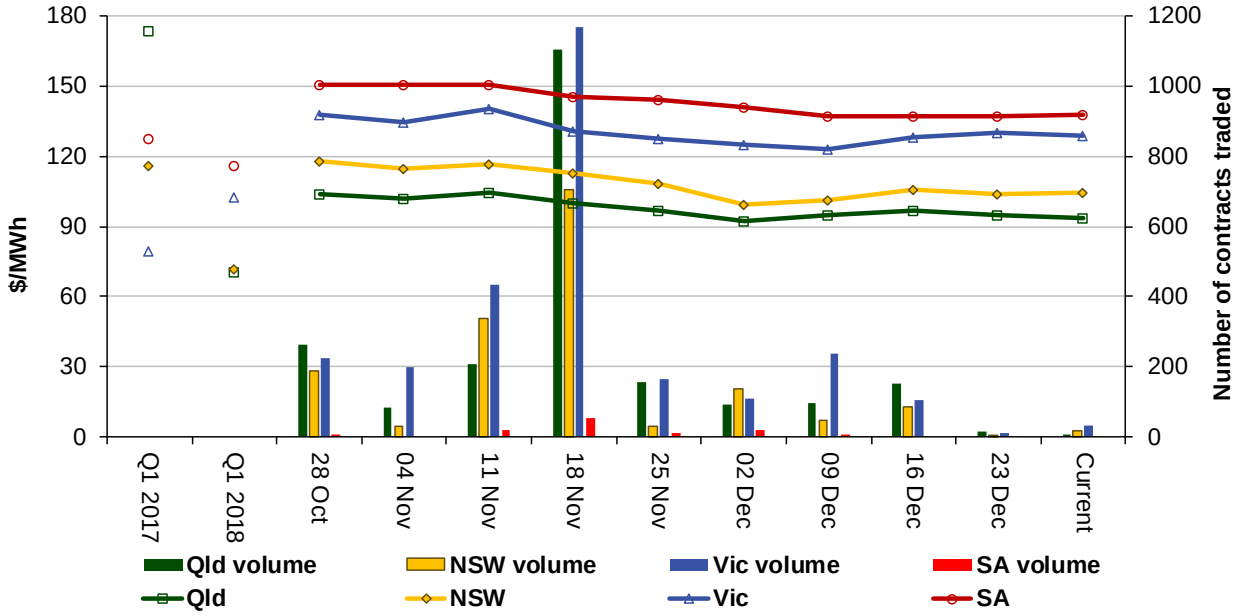
Figure 9. Quarterly base future prices Q1 2019 – Q4 2022



Source. ASXEnergy.com.au

Figure 10 shows how the price for each regional Q1 2019 base contract has changed over the last 10 weeks (as well as the total number of trades each week). The closing quarter 1 2017 and quarter 1 2018 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 2019 base contracts over the past 10 weeks (and the past 2 years)



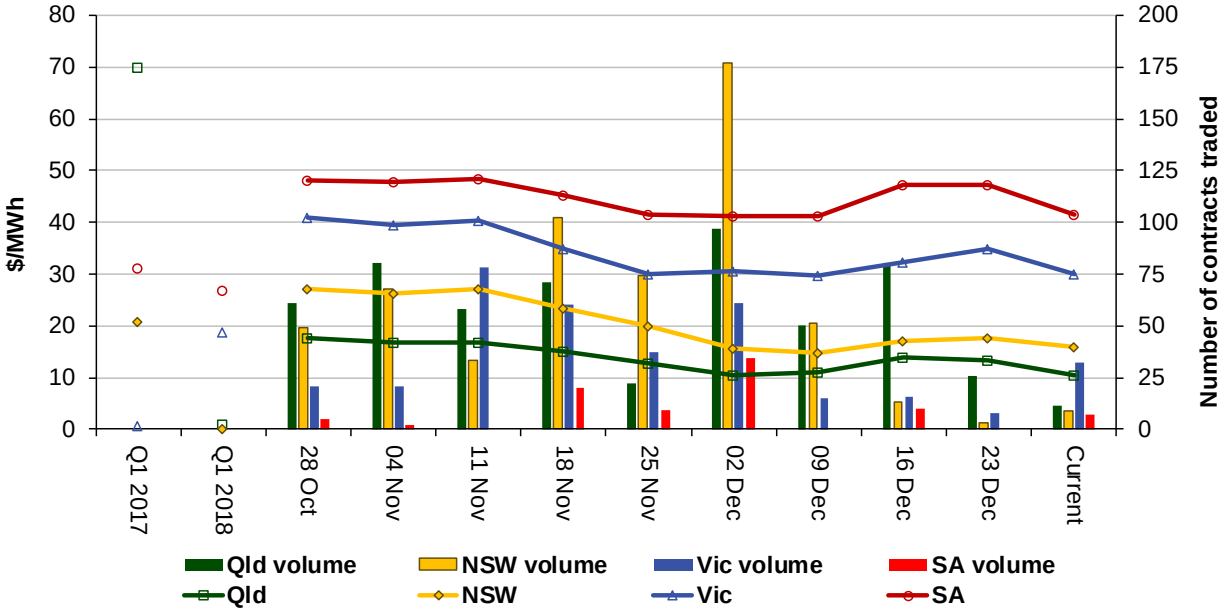
Note. Base contract prices are shown for each of the current week and the previous 9 weeks, with average prices shown for periods 1 and 2 years prior to the current year.

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 2019 cap contract has changed over the last 10 weeks (as well as the total number of trades each week). The closing quarter 1 2017 and quarter 1 2018 prices are also shown.

Figure 11. Price of Q1 2019 cap contracts over the past 10 weeks (and the past 2 years)



Source. ASXEnergy.com.au

Australian Energy Regulator
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