

28 January - 3 February 2018

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 28 January – 3 February 2018.

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

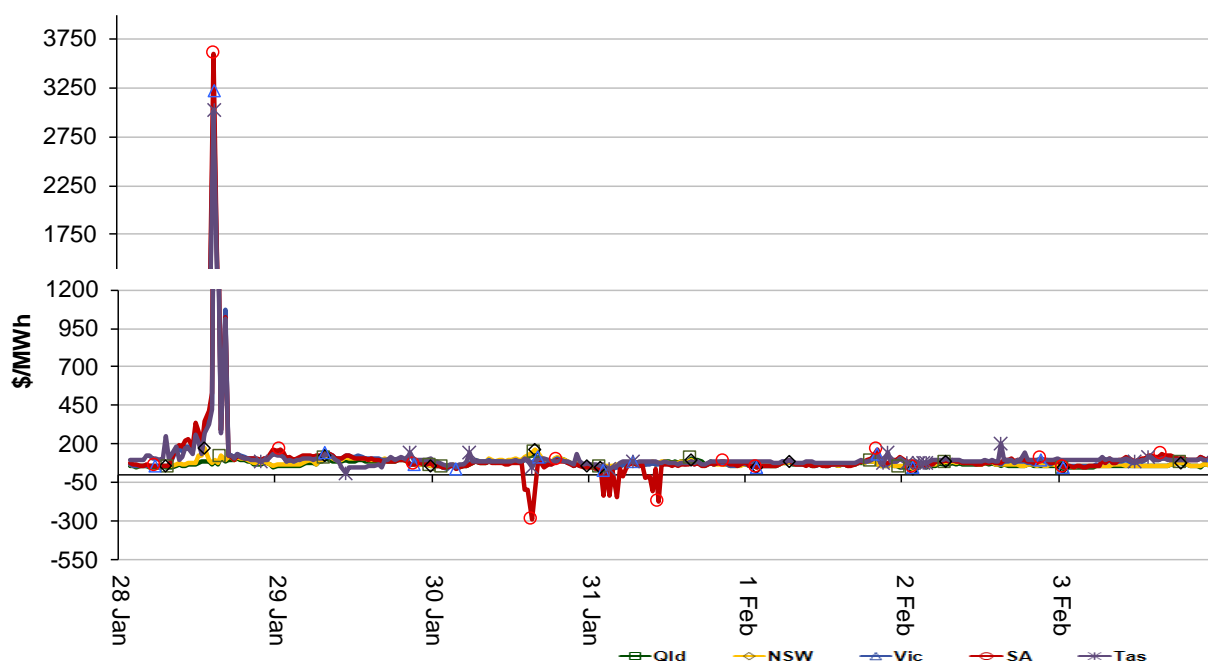


Figure 2 shows the volume weighted average (VWA) prices for the current week (with prices shown in Table 1) and the preceding 12 weeks, as well as the VWA price over the previous 3 financial years.

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

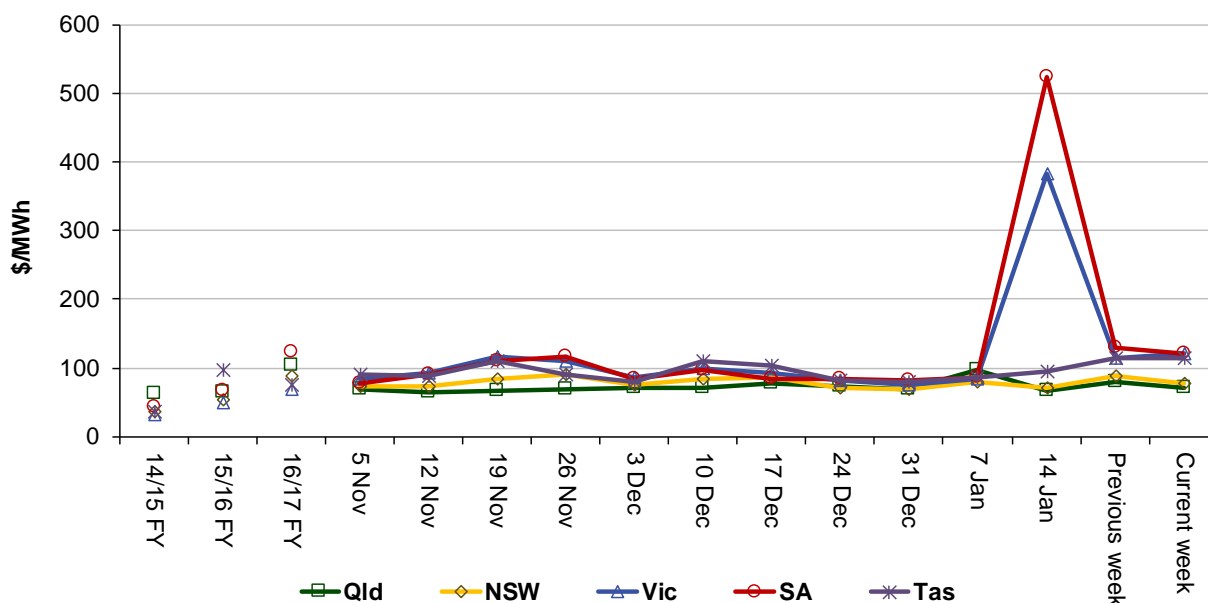


Table 1: Volume weighted average spot prices by region (\$/MWh)

Region	Qld	NSW	Vic	SA	Tas
Current week	71	77	120	122	114
16-17 financial YTD	93	66	48	104	53
17-18 financial YTD	77	87	106	113	92

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 212 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	3	17	0	1
% of total below forecast	62	13	0	4

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

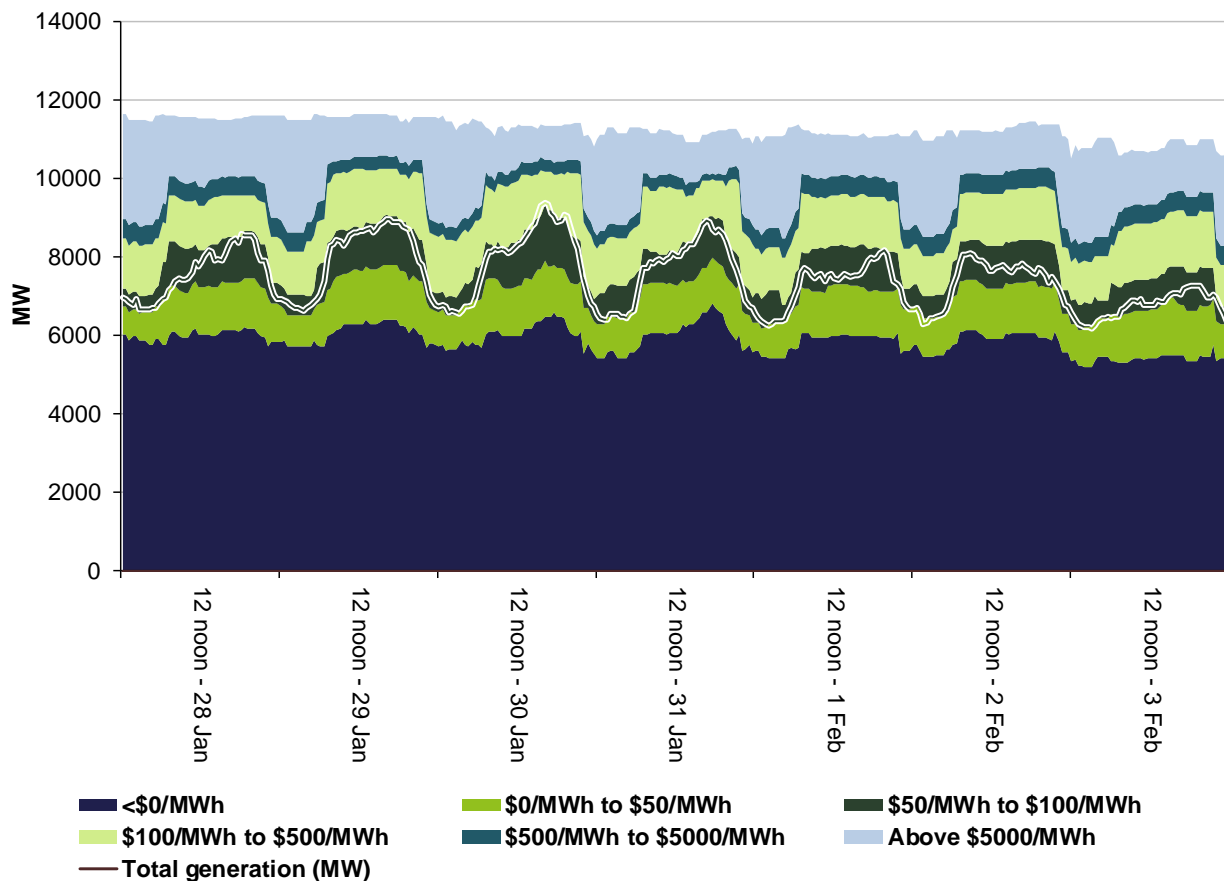


Figure 4: New South Wales generation and bidding patterns

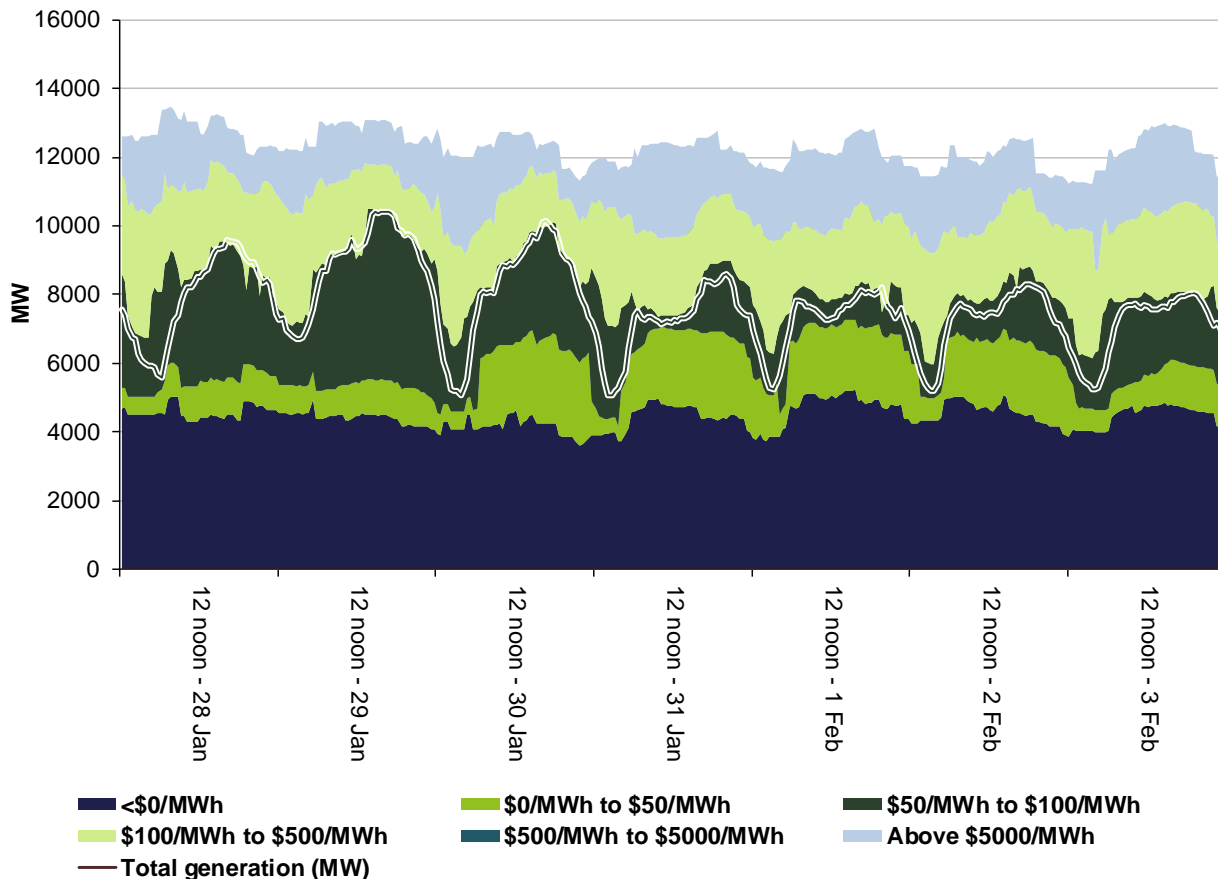


Figure 5: Victoria generation and bidding patterns

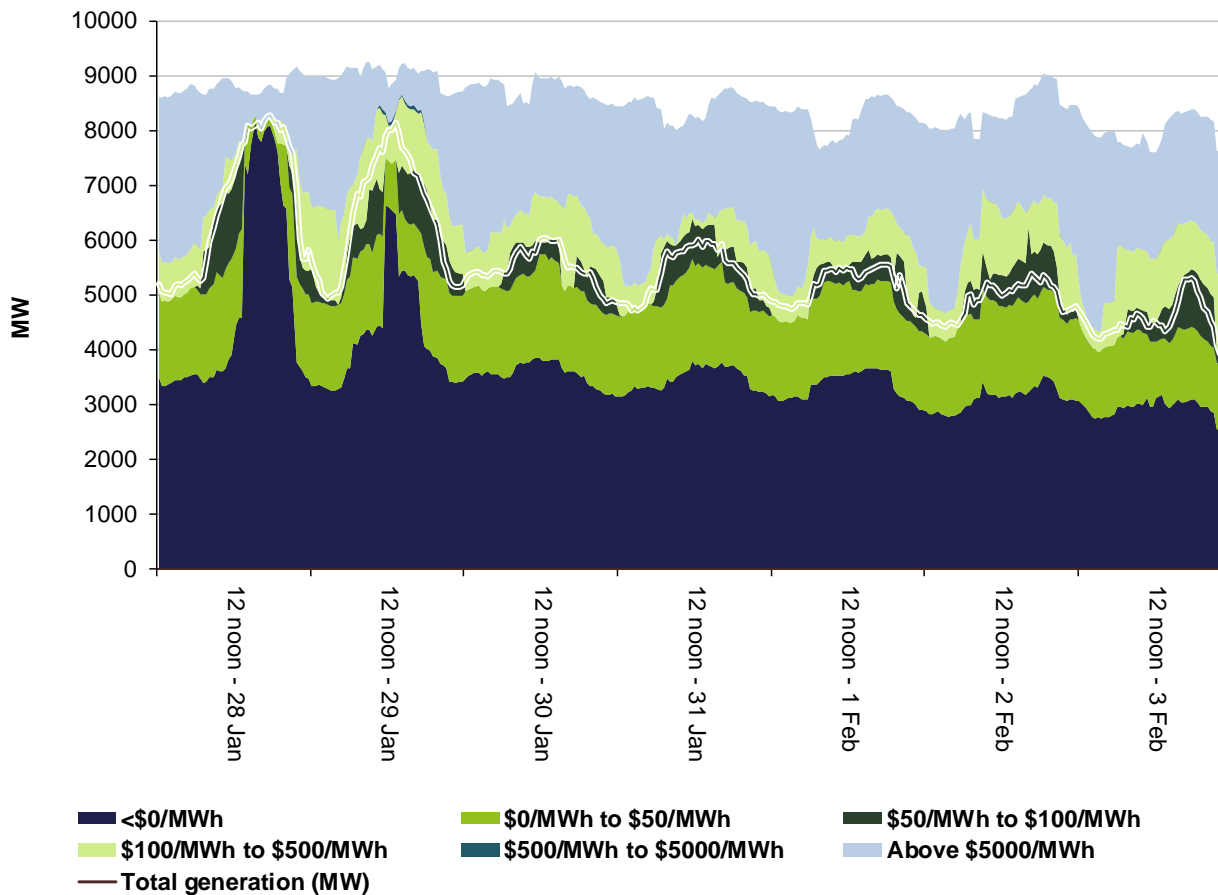


Figure 6: South Australia generation and bidding patterns

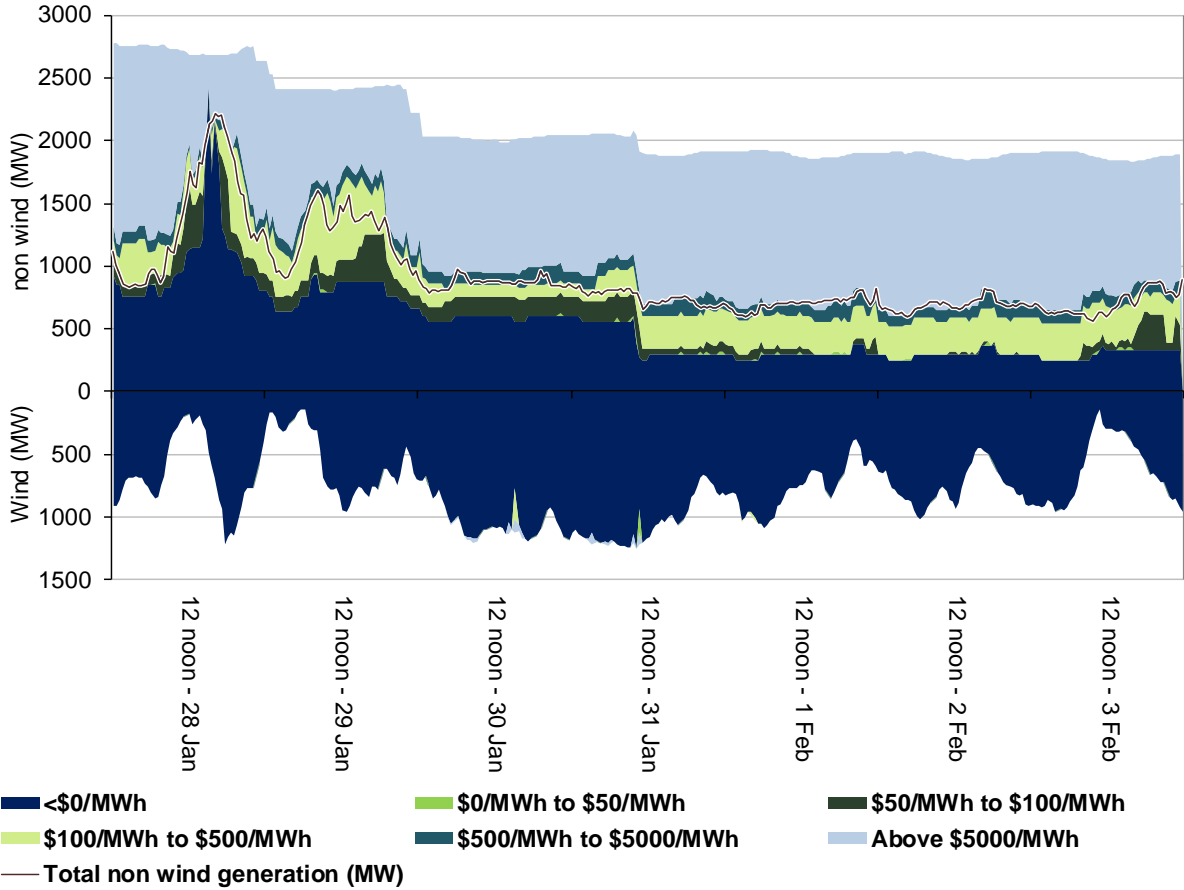
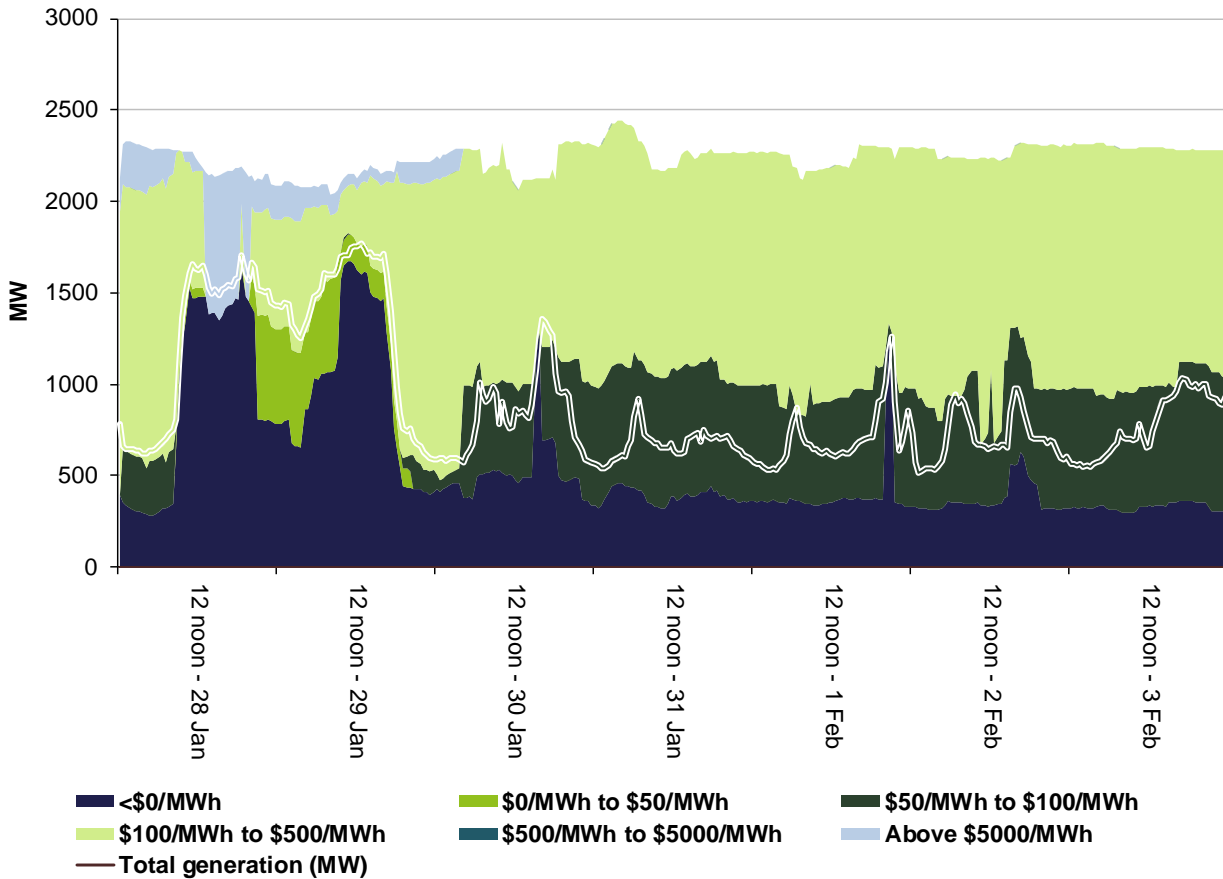


Figure 7: Tasmania generation and bidding patterns



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.

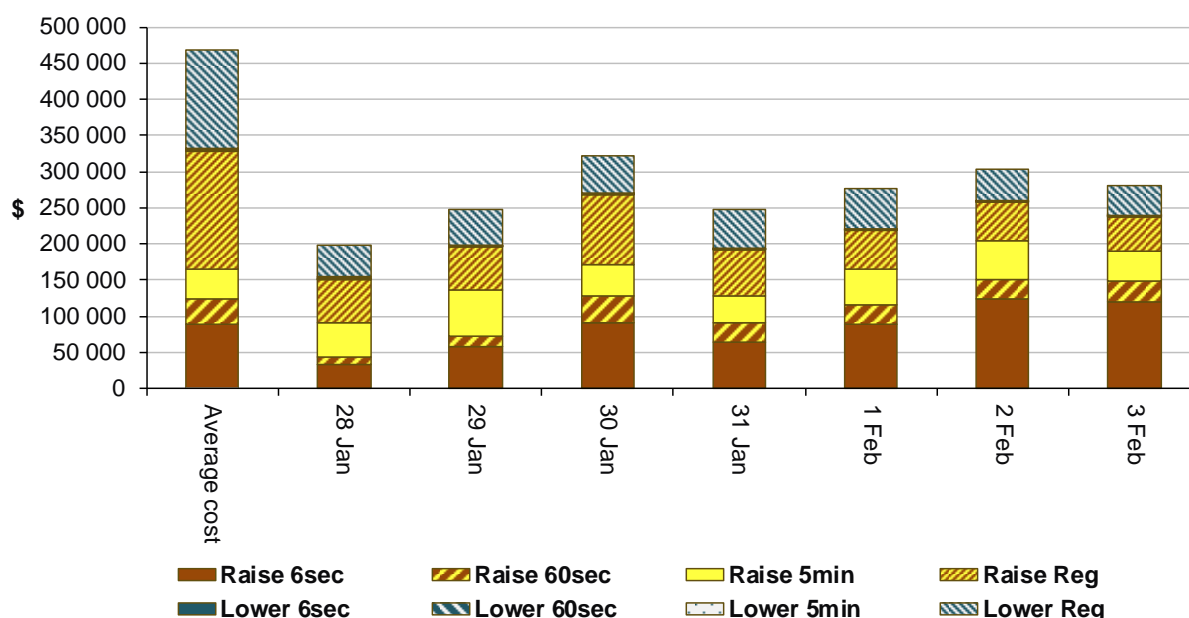
The Electricity Rules stipulate that generators pay for raise contingency services and customers pay for lower contingency services. Regulation services are paid for on a “causer pays” basis determined every four weeks by AEMO.

The total cost of FCAS on the mainland for the week was \$1 258 500 or around a half per cent of energy turnover on the mainland.

The total cost of FCAS in Tasmania for the week was \$618 500 or around three 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

Victoria

There were four occasions where the spot price in Victoria was greater than three times the Victoria weekly average price of \$120/MWh and above \$250/MWh.

Sunday, 28 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
2.30 pm	449.14	161.98	334.62	8276	7909	7765	8719	8805	8715
3 pm	3215.19	273.65	435.49	8408	8080	7950	8665	8788	8734
3.30 pm	1716.42	321.19	892.70	8556	8274	8222	8659	8779	8752
4.30 pm	1073.01	9092.70	906.04	8812	8592	8552	8680	8773	8771

During the high price period, the prices in the Victorian, South Australian and Tasmanian regions were aligned and will be discussed together in this section.

At the time of high prices, South Australia, Victoria and Tasmania had a steep supply curve with only around 70 MW of capacity priced between \$200/MWh and \$1000/MWh. Therefore, small changes in demand and or availability, would result in large changes in price.

For most of the afternoon, demand was tracking above forecast across all three regions (up to 530 MW) and availability around 150 MW less than forecast. This resulted in the dispatch price exceed \$300/MWh 21 times in Victoria, 23 times in South Australia and 19 times in Tasmania between 1.30 pm and 4.30 pm.

South Australia

There was five occasions where the spot price in South Australia was greater than three times the South Australia weekly average price of \$122/MWh and above \$250/MWh and there were six occasions where the spot price was below -\$100/MWh.

Sunday, 28 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
2 pm	411.74	210.00	349.98	2357	2283	2305	2880	2767	2755
2.30 pm	528.06	349.95	418.81	2439	2338	2338	2943	2795	2761
3 pm	3595.78	350.00	525.96	2484	2428	2414	2987	2789	2774
3.30 pm	1776.04	390.00	1067.26	2499	2475	2464	3160	2793	2798
4.30 pm	1018.58	10 394.09	1059.26	2610	2642	2566	3374	2836	2881

Prices for the 2.30 pm to 4.30 pm trading intervals were aligned with Victoria and Tasmania. Please see Victoria section for more information.

Tuesday, 30 January

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
3.30 pm	-291.71	96.07	115.06	967	1101	1195	3131	2944	2963

At times, AEMO may need to override the normal dispatch process to maintain system security. A direction was issued to a participant in South Australia on 29 January 2018 and it remained in place until 31 January 2018. This triggered an intervention event¹. Special pricing arrangements apply in all regions following an intervention in the market.

Demand was 134 MW lower than forecast while available capacity was 187 MW higher than forecast four hours ahead respectively. As a result the price fell to the floor for two dispatch intervals at 3.10 pm and 3.20 pm.

Wednesday, 31 January

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
2.30 am	-140.04	36.91	48.90	1015	984	1071	3219	3064	2837
3.30 am	-138.42	36.39	46.59	1000	982	1045	3269	3080	2938
4.30 am	-144.51	43.90	45.36	985	992	1025	3244	3077	3040
10 am	-109.54	72.77	75.32	1141	1065	1089	3285	3157	3085
11 am	-174.70	71.24	63.88	1049	986	990	3248	3097	3064

At times, AEMO may need to override the normal dispatch process to maintain system security. A direction was issued to a gas plant in South Australia on 29 January 2018 and it remained in place until 31 January 2018. This triggered an intervention event. Special pricing arrangements apply in all regions following an intervention in the market.

Conditions at the time saw availability up to 189 MW greater than that forecast four hours ahead, largely due to greater wind generation than expected. With little capacity priced between the floor and \$0-100/MWh small increases in wind or decreases in demand saw the price decrease to the floor for one dispatch interval in each of the above trading intervals.

Tasmania

There four occasions where the spot price in Tasmania was greater than three times the Tasmania weekly average price of \$114/MWh and above \$250/MWh.

¹ For more information on Intervention pricing see: [Operation of the intervention price provisions in the National Electricity Market](#). Source AEMO.

Sunday, 28 January

Table 7: Price, Demand and Availability

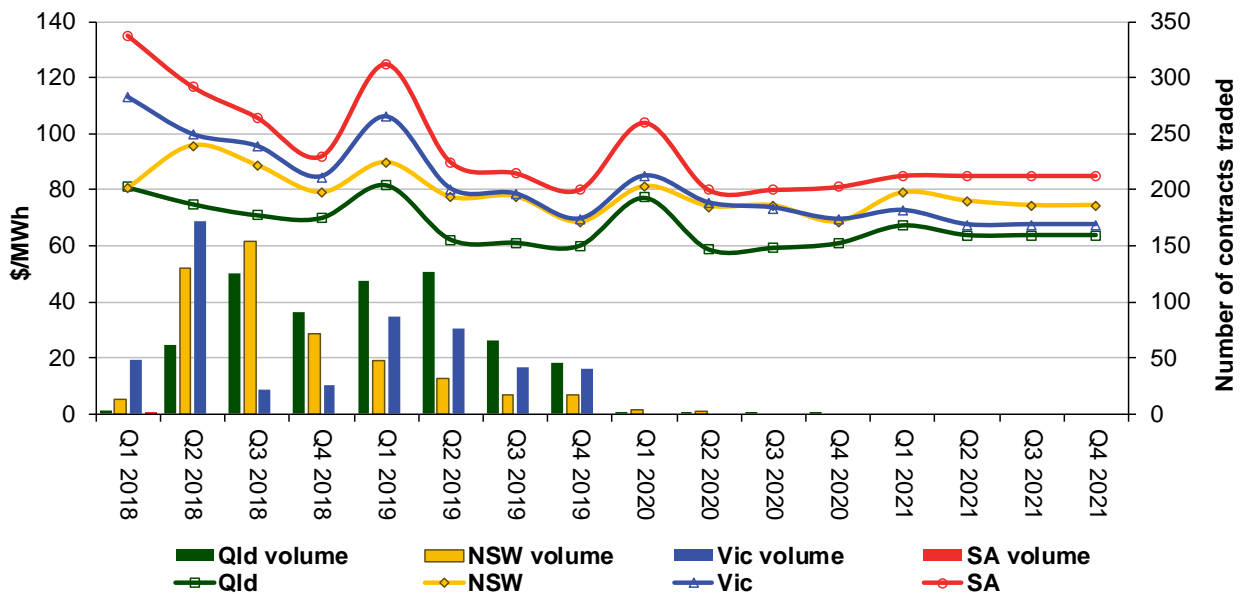
Time	Price (\$/MWh)			Demand (MW)			Availability (MW)		
	Actual	4 hr forecast	12 hr forecast	Actual	4 hr forecast	12 hr forecast	Actual	4 hr forecast	12 hr forecast
2.30 pm	425.04	152.50	314.22	1155	1094	1049	2147	2333	2333
3 pm	3015.82	257.63	410.00	1131	1119	1067	2143	2336	2333
3.30 pm	1614.19	303.17	842.63	1122	1141	1082	2141	2339	2335
4.30 pm	1012.48	8473.27	853.01	1165	1167	1117	2163	2197	2334

Prices at the time were aligned with Victoria and South Australia. Please see Victoria section.

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.

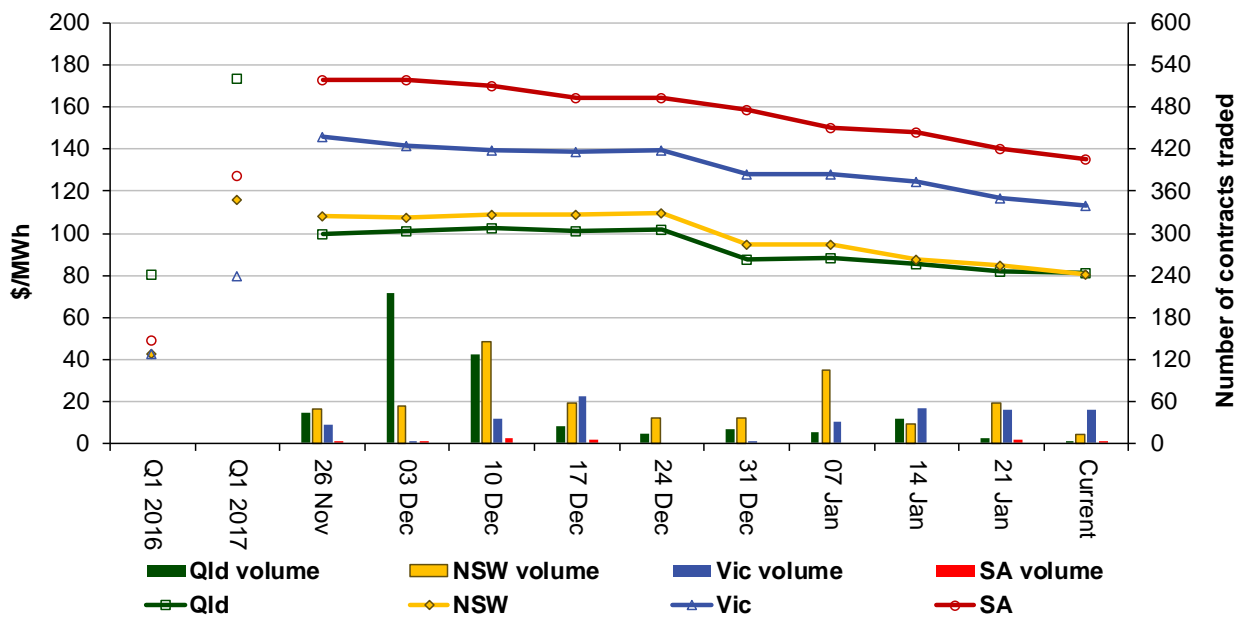
Figure 9: Quarterly base future prices Q1 2018 – Q4 2021



Source. ASXEnergy.com.au

Figure 10 shows how the price for each regional Q1 2018 base contract has changed over the last 10 weeks (as well as the total number of trades each week). The closing quarter 1 2016 and quarter 1 2017 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 2018 base contracts over the past 10 weeks (and the past 2 years)



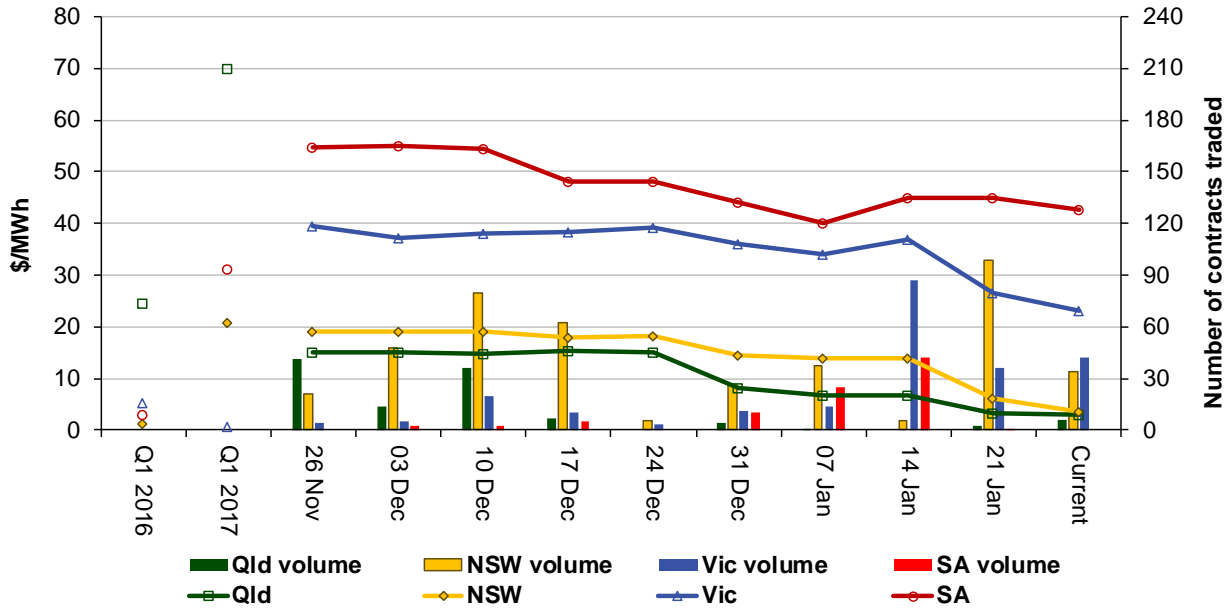
Note. Base contract prices are shown for each of the current week and the previous 9 weeks, with average prices shown for periods 1 and 2 years prior to the current year.

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 2018 cap contract has changed over the last 10 weeks (as well as the total number of trades each week). The closing quarter 1 2016 and quarter 1 2017 prices are also shown.

Figure 11: Price of Q1 2018 cap contracts over the past 10 weeks (and the past 2 years)



Source. ASXEnergy.com.au

**Australian Energy Regulator
May 2018**