

4 - 10 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 4 – 10 February 2018.

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

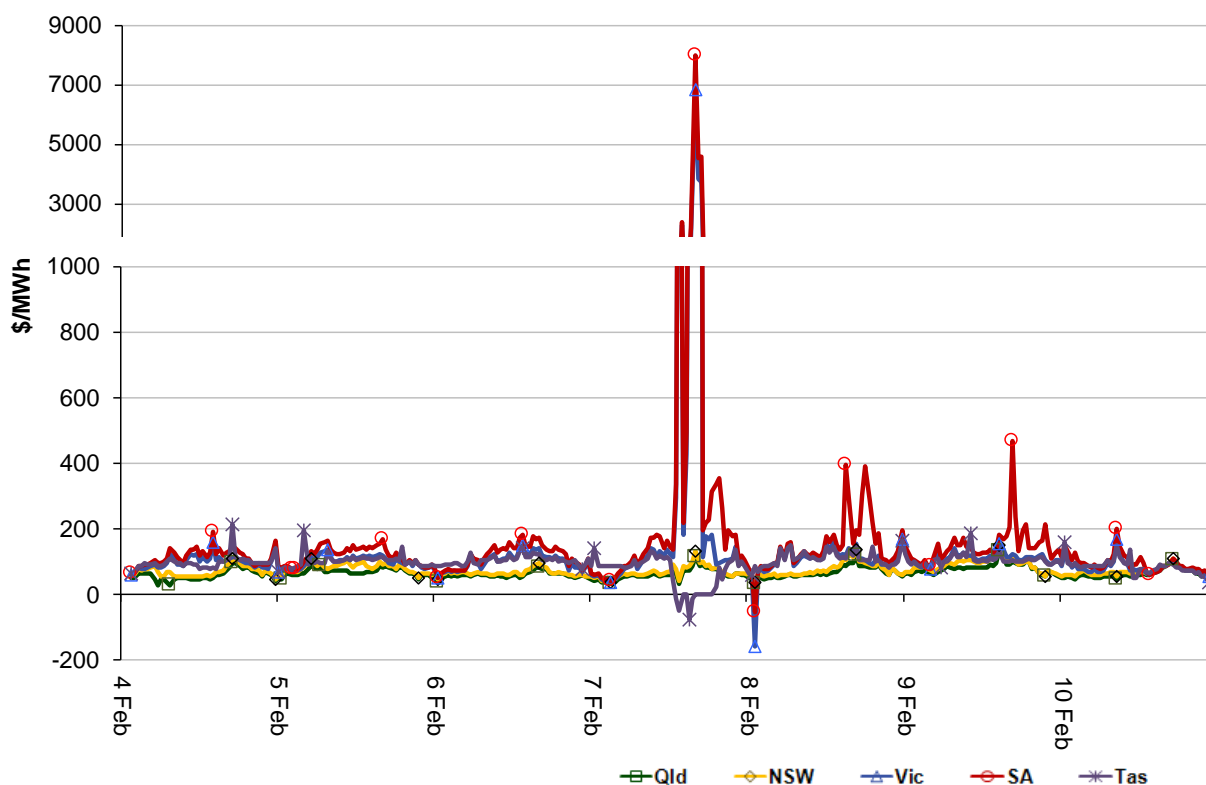


Figure 2 shows the volume weighted average (VWA) prices for the current week (with prices shown in Table 1) and the preceding 12 weeks, as well as the VWA price over the previous 3 financial years.

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

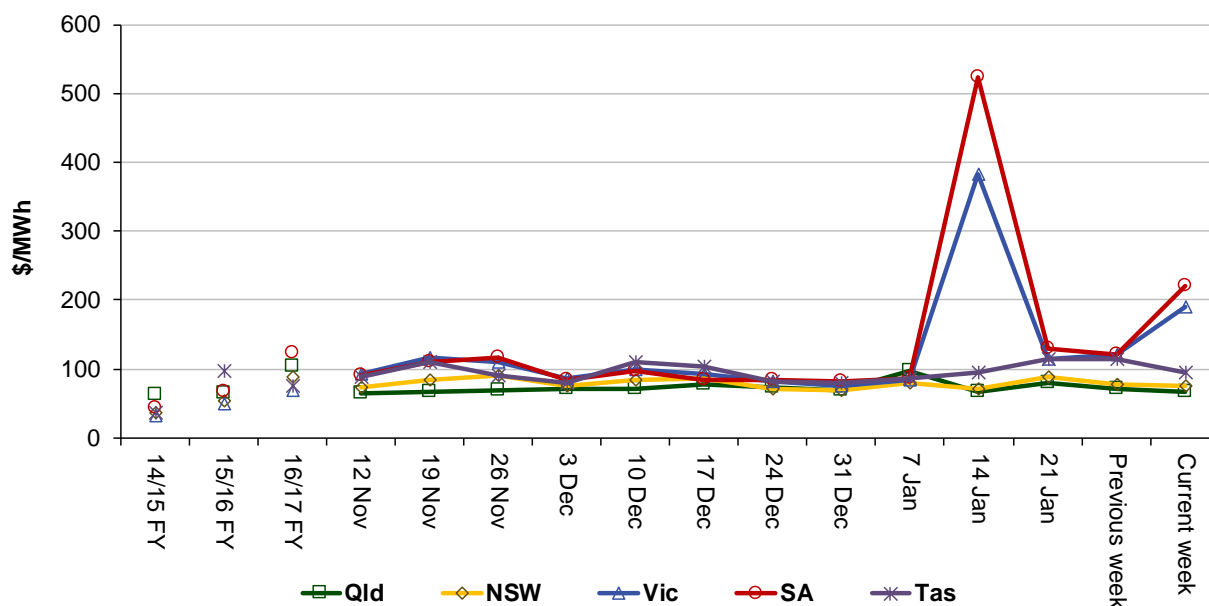


Table 1: Volume weighted average spot prices by region (\$/MWh)

Region	Qld	NSW	Vic	SA	Tas
Current week	67	76	189	221	96
16-17 financial YTD	102	83	50	126	54
17-18 financial YTD	77	86	109	117	93

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 194 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	10	15	0	1
% of total below forecast	52	16	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 The red ellipse in Figure 6 shows the period when a number of participants rebid capacity from high to low prices. This was made in response to high prices in Victoria and South Australia. See 'Detailed market analysis of significant price event' section for more information.

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

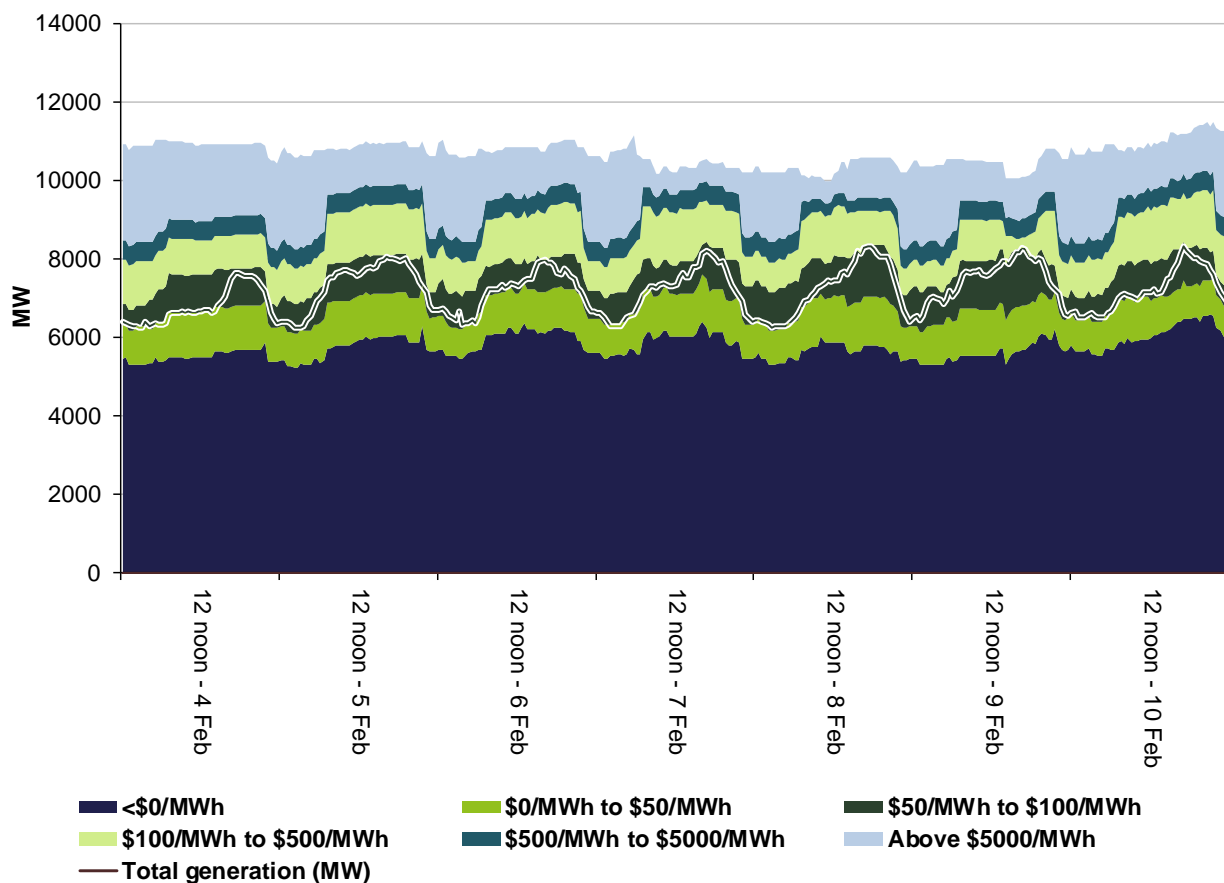


Figure 4: New South Wales generation and bidding patterns

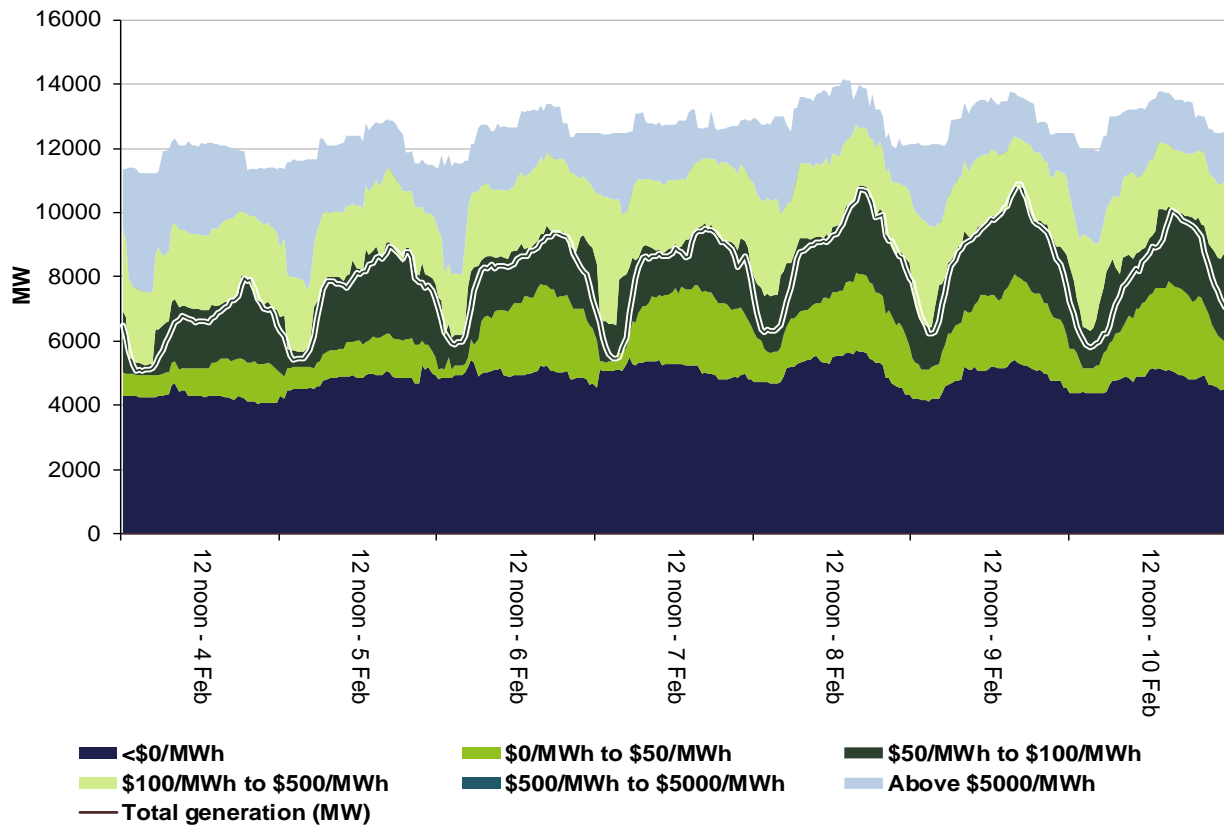
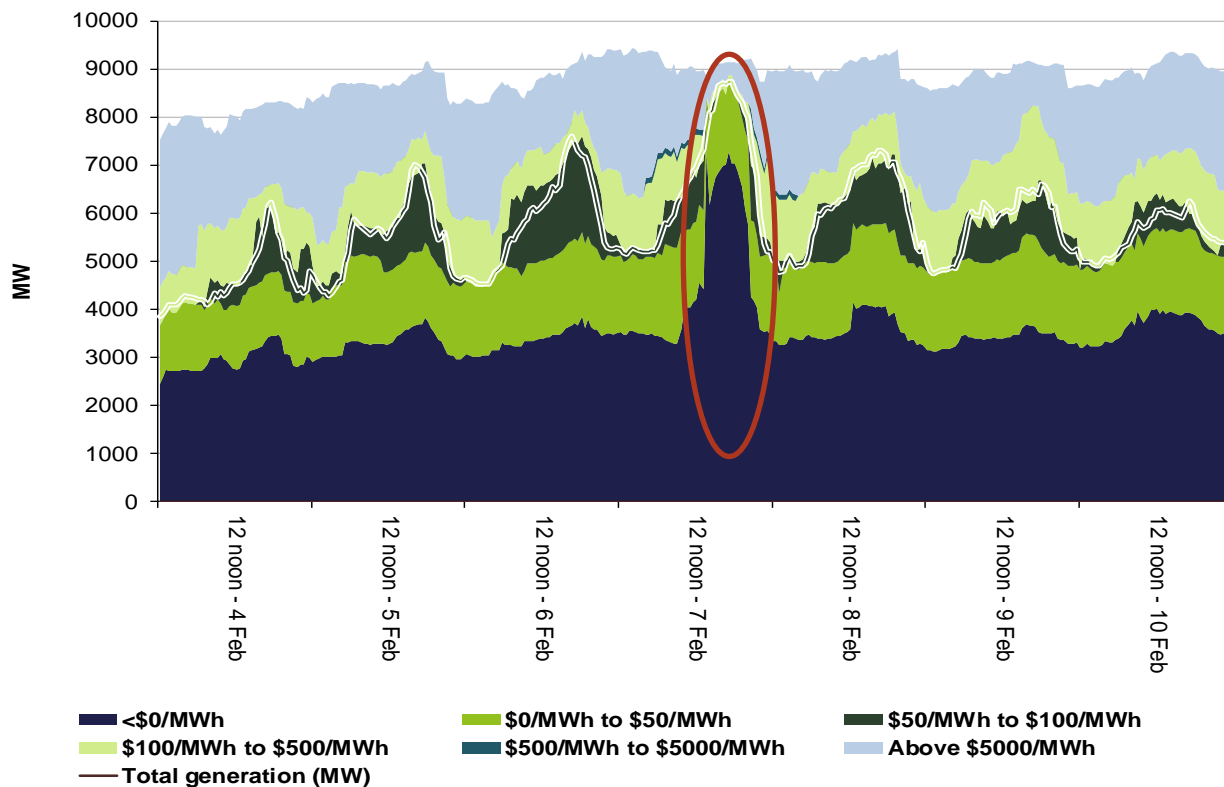
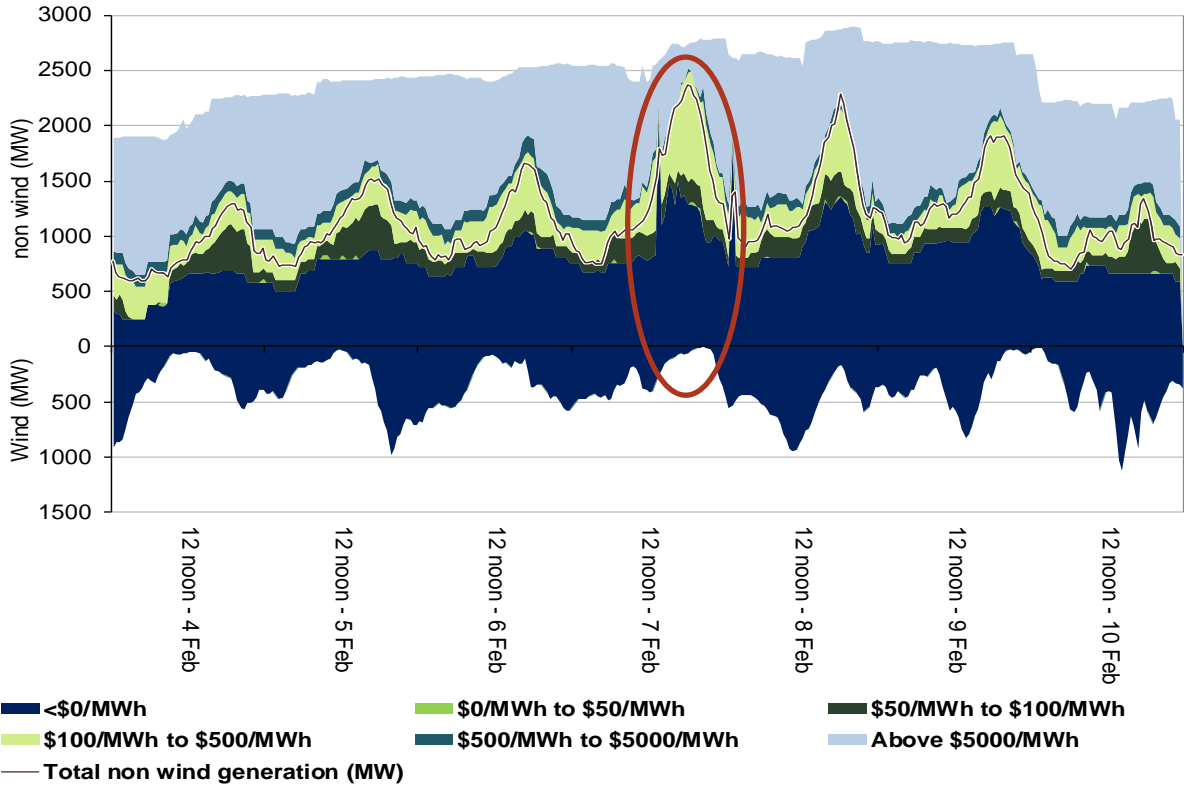


Figure 5: Victoria generation and bidding patterns



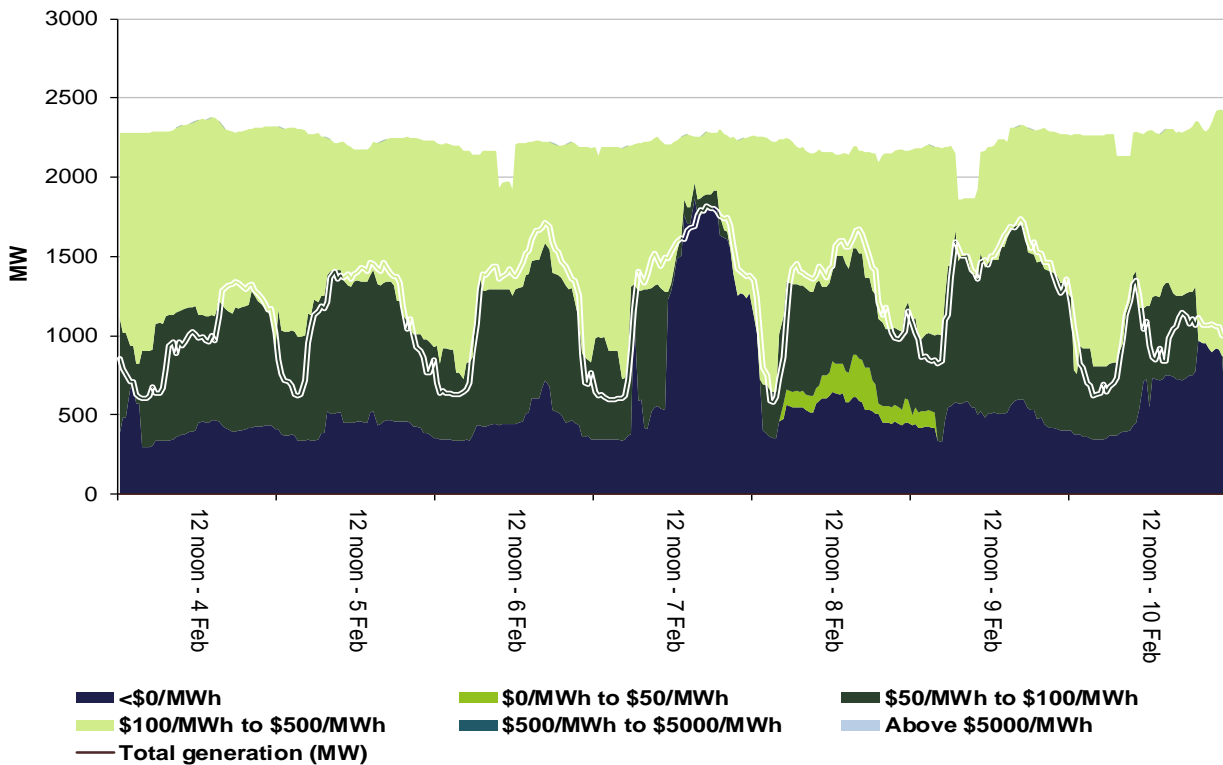
The red ellipse in Figure 5 shows the period when a number of participants rebid capacity from high to low prices. This was made in response to high prices in Victoria and South Australia. See 'Detailed market analysis of significant price event' section for more information.

Figure 6: South Australia generation and bidding patterns



The red ellipse in Figure 6 shows the period when a number of participants rebid capacity from high to low prices. This was made in response to high prices in Victoria and South Australia. See 'Detailed market analysis of significant price event' section for more information.

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.

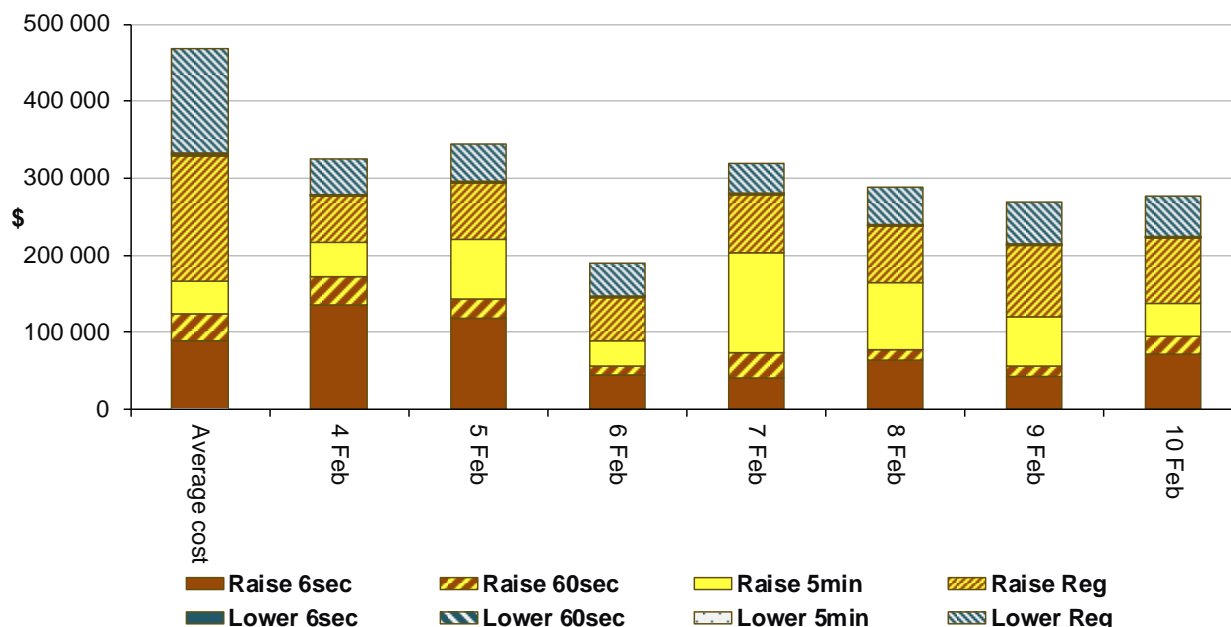
The Electricity Rules stipulate that generators pay for raise contingency services and customers pay for lower contingency services. Regulation services are paid for on a “causer pays” basis determined every four weeks by AEMO.

The total cost of FCAS on the mainland for the week was \$1 624 000 or less than one per cent of energy turnover on the mainland.

The total cost of FCAS in Tasmania for the week was \$386 000 or around two 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 five occasions where the spot price in Victoria was greater than three times the Victoria weekly average price of \$189/MWh and above \$250/MWh and there was one occasion where the spot price was below -\$100/MWh.

Wednesday, 7 February

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 pm	2265.31	188.78	572.19	8139	8021	8027	8920	9009	9019
3.30 pm	1921.27	506.27	9999.81	8793	8539	8550	9087	9047	9072
4 pm	6846.57	9532.41	11 053.06	8987	8699	8693	9096	9068	9107
4.30 pm	3810.08	11 500.81	12 223.92	9045	8870	8856	9116	9068	9102
5 pm	3736.81	13 049.80	13 049.80	8905	9077	9068	9132	9023	9107

Prices in Victoria were aligned with South Australia and will be discussed as one region. For the 2 pm trading interval, net demand across Victoria and South Australia was around 300 MW greater than forecast and net availability was around 160 MW lower than forecast, four hours ahead.

At the start of the 2 pm interval, there was a step change in offers at Mortlake power station, with almost 400 MW reduction of generation priced less than \$100/MWh. This led to Mortlake being ramp down constrained at 1.35 pm and not able to set price. By 1.40 pm, Mortlake was no longer ramp rate constrained and could set price, this saw the 1.40 pm dispatch price exceed \$13 000/MWh. In response, participants in both regions rebid around 1500 MW in total of capacity from prices between \$100/MWh and the price cap to below zero. As a result the price was set below \$35/MWh for the remainder of the trading interval.

The 3.30 pm to 5 pm trading intervals are discussed in the Prices above \$5000/MWh – 7 February 2018 (Vic and SA) report¹ These prices were all less than forecast 12 hours ahead as participants rebid capacity from high to low prices as shown in Figures 5 and Figure 6.

Thursday, 8 February

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
1.30 am	-157.92	69.04	70.48	5027	5131	4993	8965	9152	8615

Conditions at the time saw demand around 100 MW lower than forecast and availability was around 190 MW lower than forecast, both four hours ahead.

¹ Source AER: [Prices above \\$5000/MWh – 7 February 2018 \(Vic and SA\) report](#).

The first dispatch interval was impacted by erroneous SCADA data from a windfarm. This led to a system normal constraint setting price at the floor for the 1.05 am dispatch interval. The erroneous data was corrected within one dispatch interval and the price remained at \$11/MWh for the remainder of the trading interval. AEMO are currently investigating whether this is a potential scheduling error and will published their findings in due course.

South Australia

There were five occasions where the spot price in South Australia was greater than three times the South Australia weekly average price of \$221/MWh and above \$250/MWh.

Wednesday, 7 February

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
2 pm	2356.96	210.00	590.01	2278	2102	2104	2842	2915	2925
3.30 pm	2184.75	578.81	10 865.43	2434	2304	2315	2829	2924	2949
4 pm	8001.25	10 578.87	12 266.12	2545	2394	2393	2848	2914	2920
4.30 pm	4531.01	12 450.79	13 100.02	2634	2464	2456	2834	2899	2881
5 pm	4588.90	14 169.65	13 998.99	2686	2700	2535	2811	2880	2848

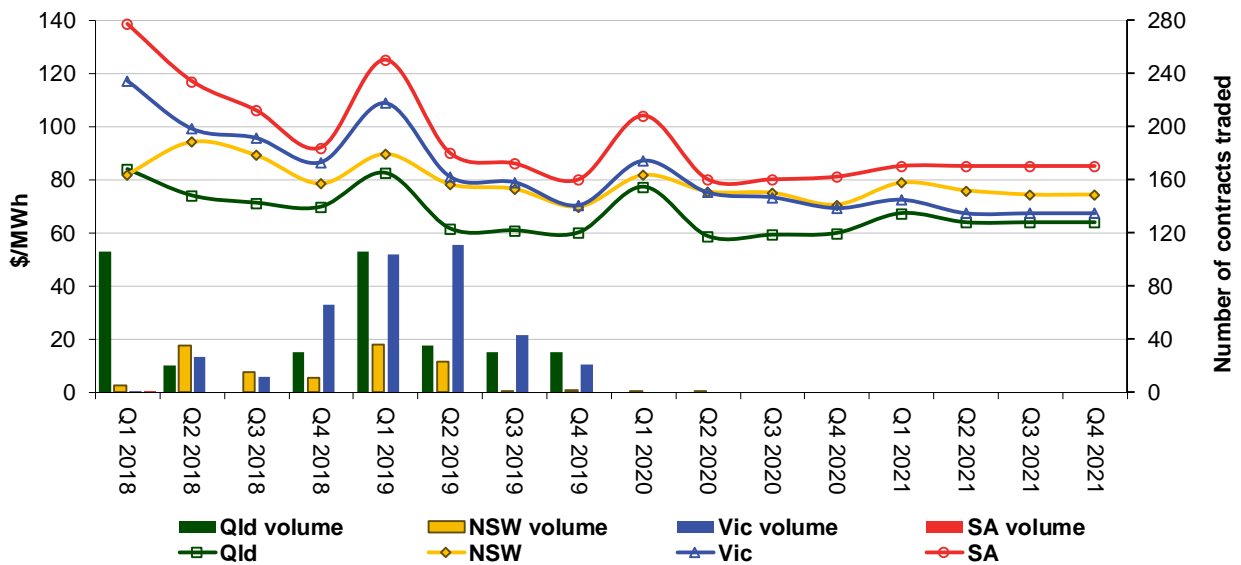
Prices were aligned between Victoria and South Australia. See the Victorian section for analysis.

The 3.30 pm to 5 pm trading intervals are discussed in the Prices above \$5000/MWh – 7 February 2018 (Vic and SA) report.

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.

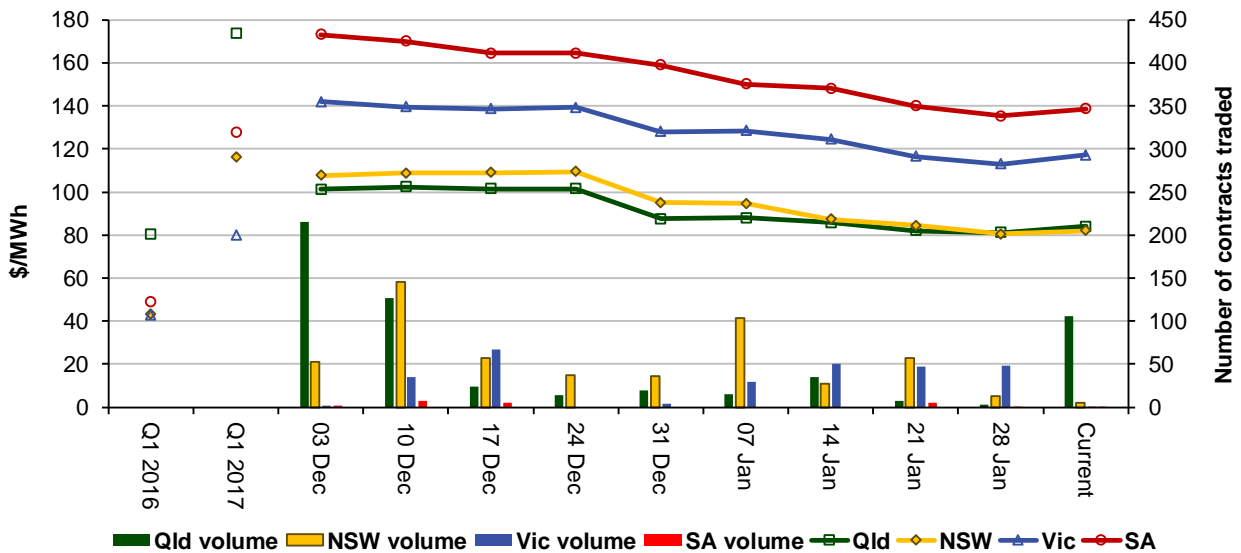
Figure 9: Quarterly base future prices Q1 2018 – Q4 2021



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)



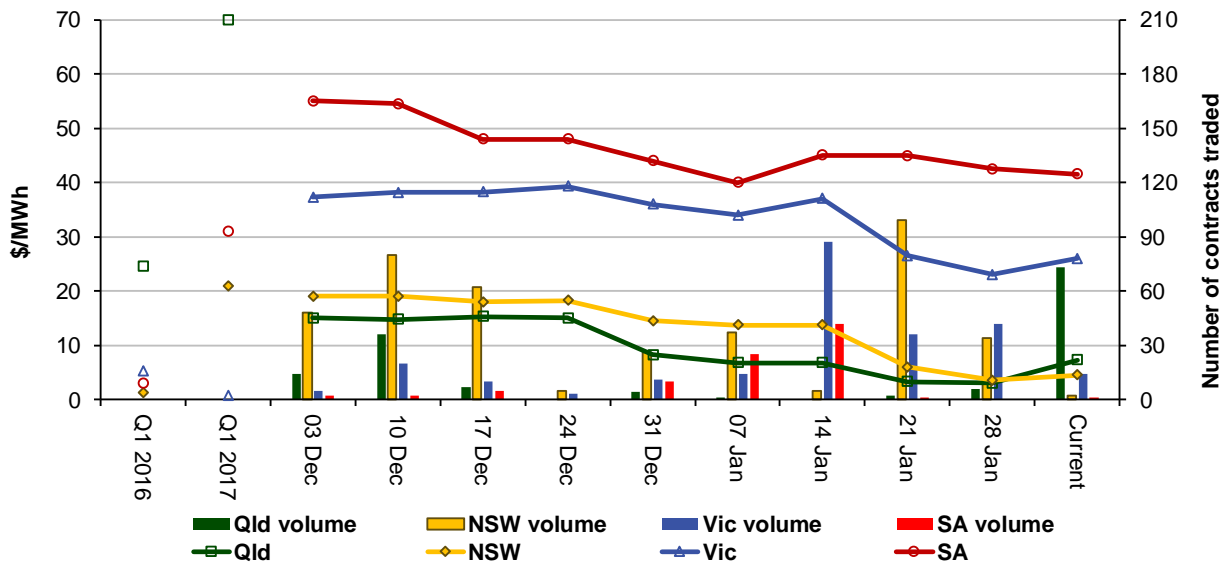
Note. Base contract prices are shown for each of the current week and the previous 9 weeks, with average prices shown for periods 1 and 2 years prior to the current year.

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