

19 – 25 March 2017

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 19 – 25 March 2017.

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

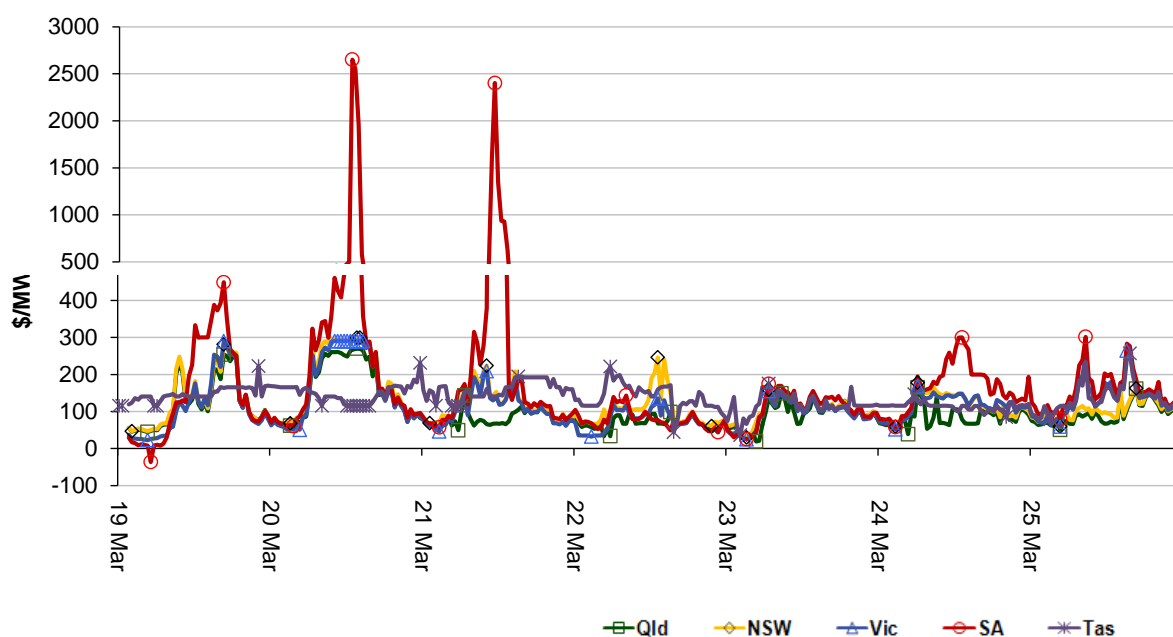


Figure 2 shows the volume weighted average (VWA) prices for the current week (with prices shown in Table 1) and the preceding 12 weeks, as well as the VWA price over the previous 3 financial years.

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

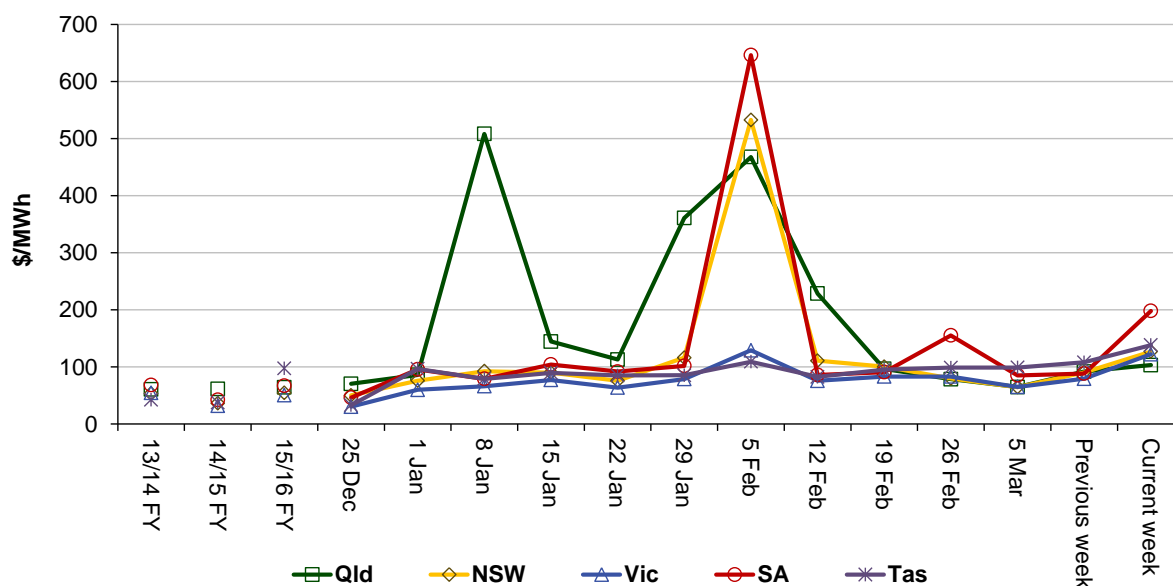


Table 1: Volume weighted average spot prices by region (\$/MWh)

Region	Qld	NSW	Vic	SA	Tas
Current week	103	127	122	198	138
15-16 financial YTD	60	46	44	61	89
16-17 financial YTD	107	86	56	125	61

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 305 trading intervals throughout the week where actual prices varied significantly from forecasts. This compares to the weekly average in 2016 of 273 counts and the average in 2015 of 133. 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	4	23	0	1
% of total below forecast	49	21	0	3

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

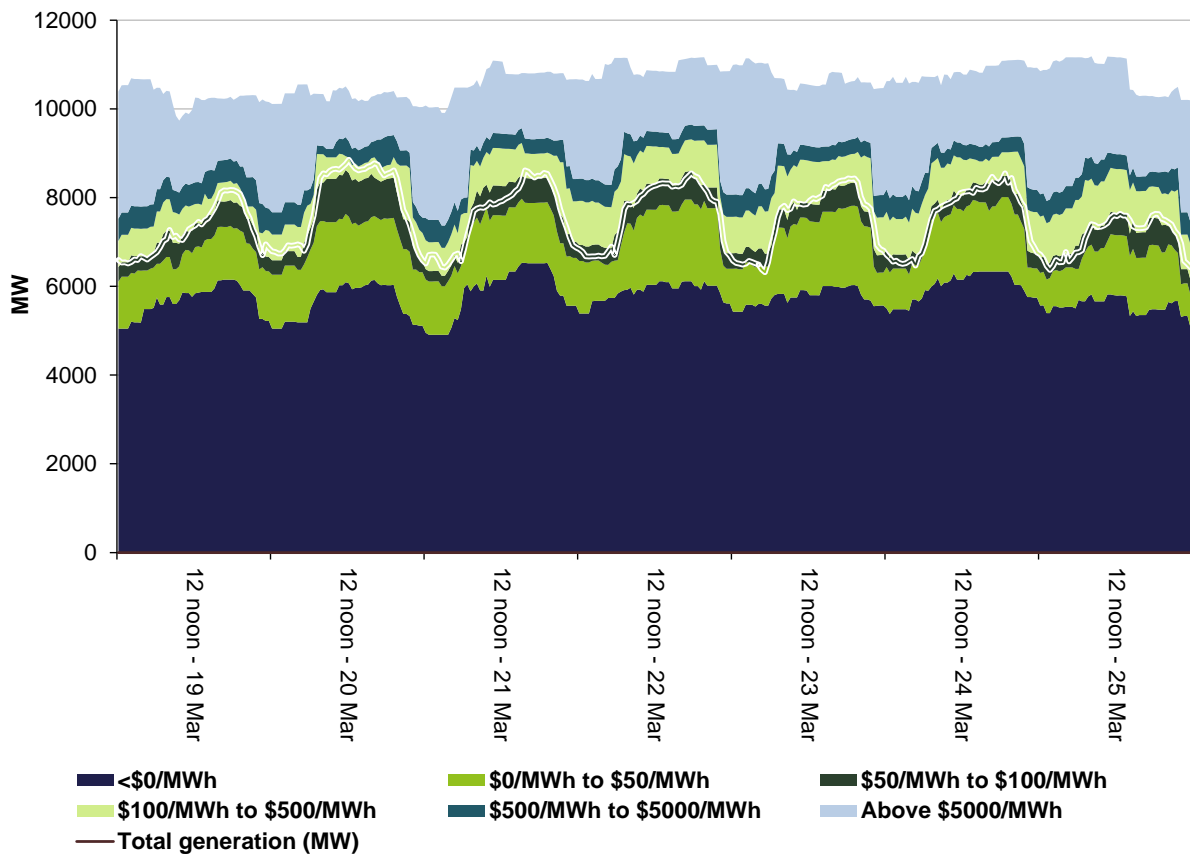


Figure 4: New South Wales generation and bidding patterns

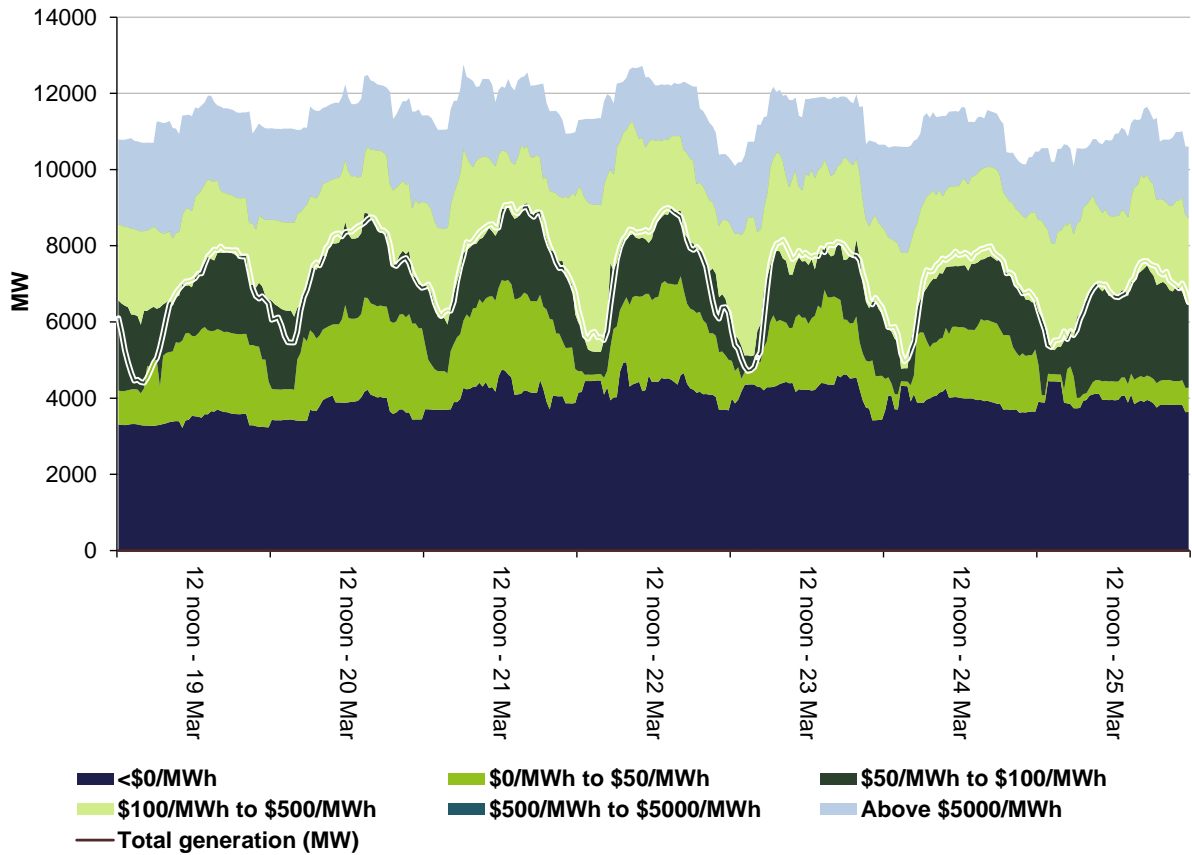


Figure 5: Victoria generation and bidding patterns

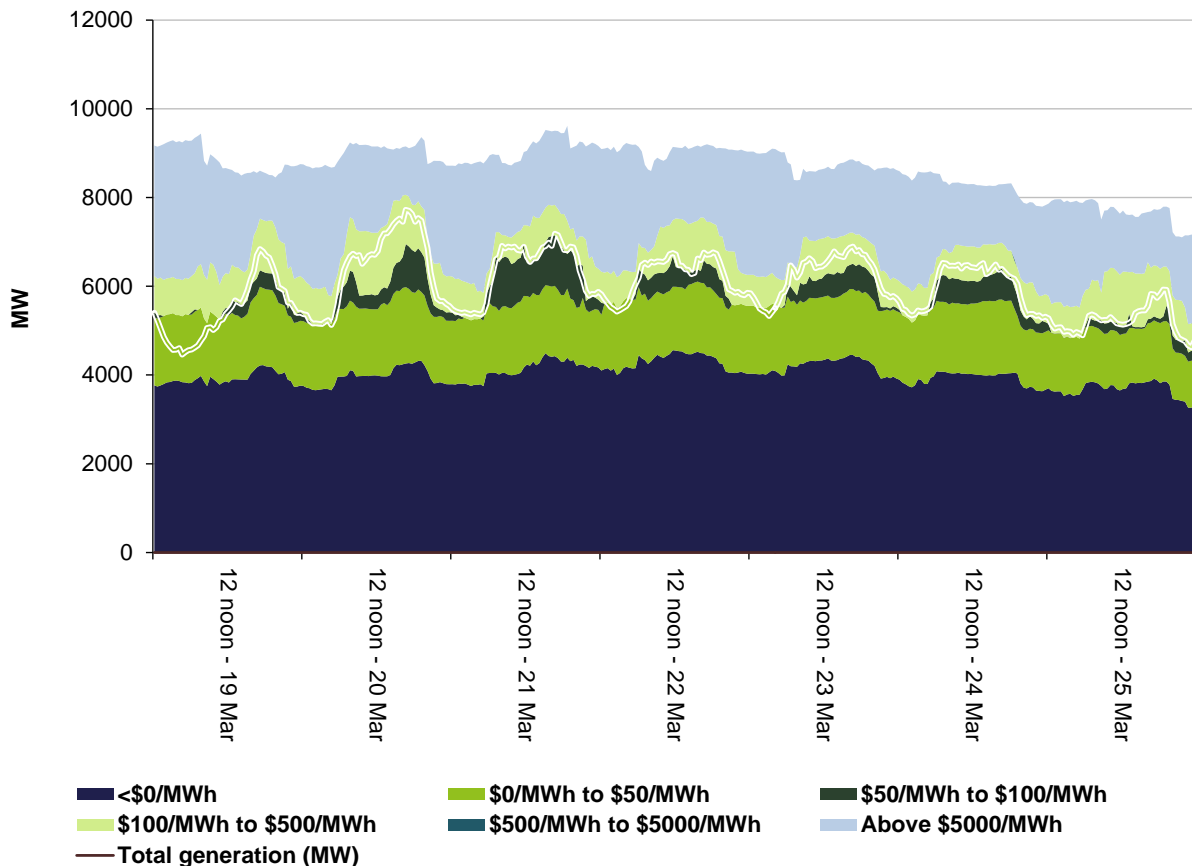


Figure 6: South Australia generation and bidding patterns

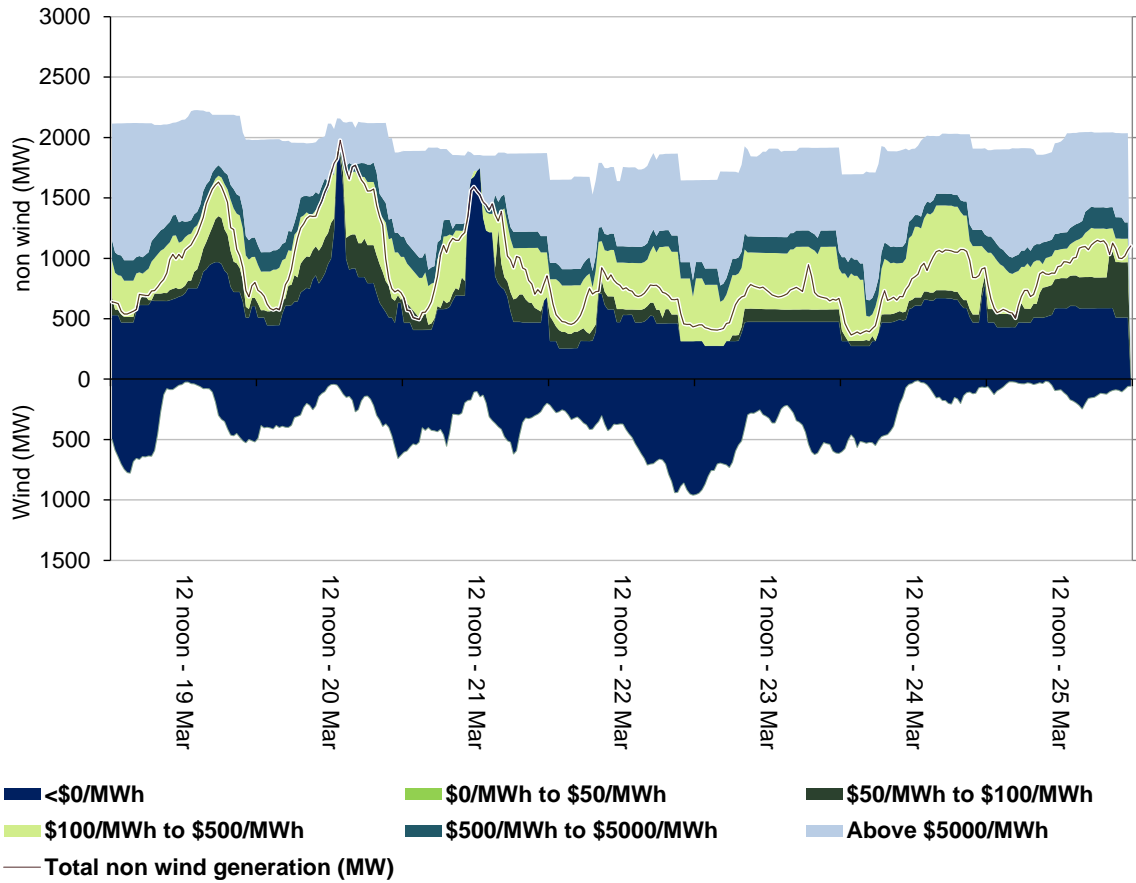
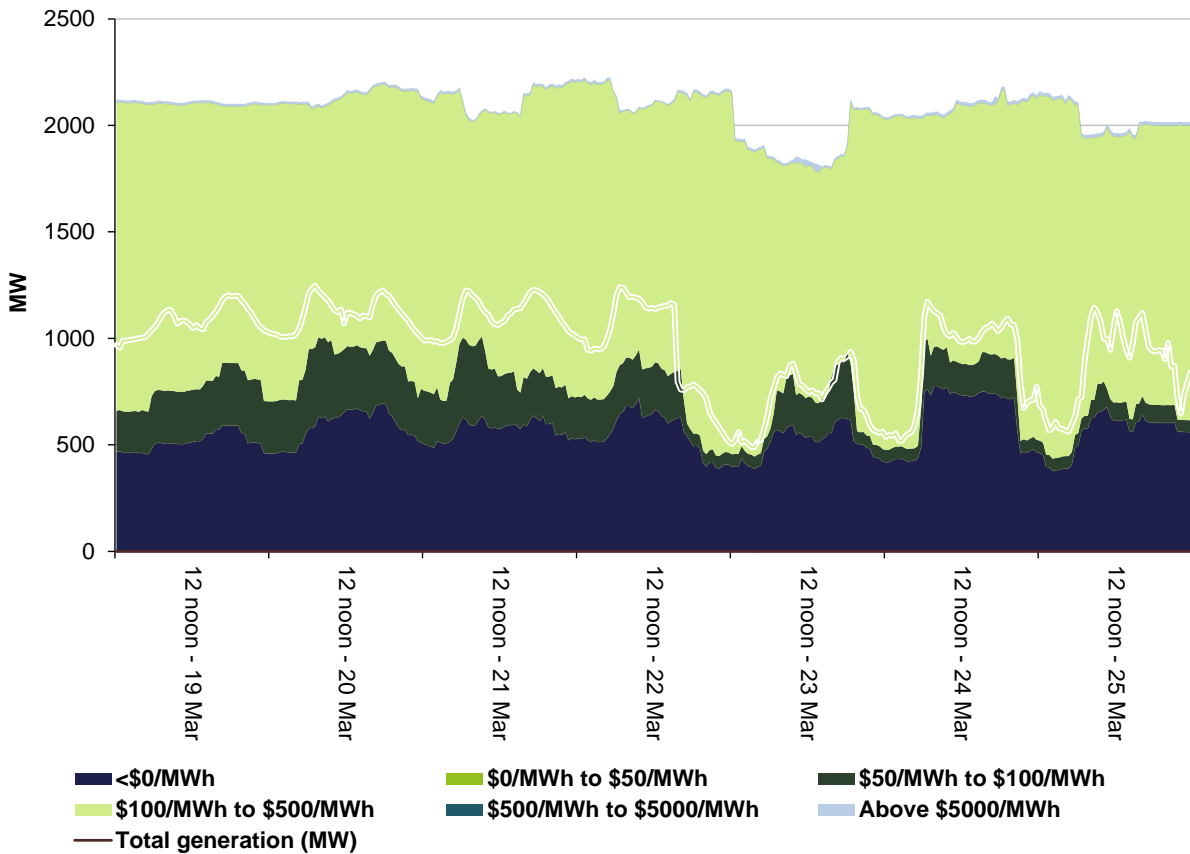


Figure 7: Tasmania generation and bidding patterns



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.

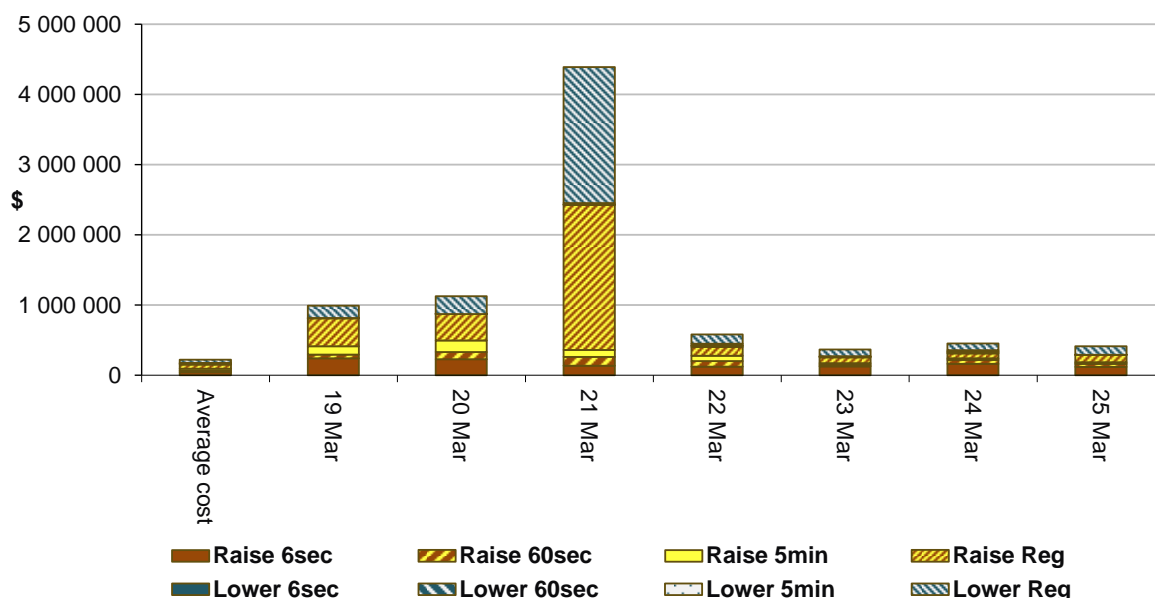
The Electricity Rules stipulate that generators pay for raise contingency services and customers pay for lower contingency services. Regulation services are paid for on a “causer pays” basis determined every four weeks by AEMO.

The total cost of FCAS on the mainland for the week was \$7 724 500 or around two per cent of energy turnover on the mainland.

The total cost of FCAS in Tasmania for the week was \$588 500 or around 2 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 19 and 20 March there was a planned outage on the Moorabool to Mortlake 500 kV line which placed South Australia at risk of separation from the rest of the NEM. AEMO invoked constraints requiring local raise and lower regulation services in South Australia. During this time prices for regulation services were around \$276/MW for large periods on each day.

On 21 March, there was a planned outage of the Moorabool to Tarrone 500kV line which placed South Australia at risk of separation from the rest of the NEM. AEMO invoked

constraints requiring local raise and lower regulation services in South Australia. The dispatch for local raise and lower services exceed \$5000/MW on 66 and 65 occasions respectively. As required by clause 3.8.17 of the National Electricity Rules, the AER has published a separate \$5000/MW report into this event.¹

Detailed market analysis of significant price events

South Australia

There were nine occasions where the spot price in South Australia was greater than three times the South Australia weekly average price of \$198/MWh and above \$250/MWh.

Monday, 20 March

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
1 pm	2651.96	578.81	13 100.02	1909	1773	1795	2149	2148	2111
1.30 pm	2549.33	578.81	13 100.02	1931	1812	1810	2190	2234	2202
2 pm	1958.44	1750.05	13 100.02	1954	1937	1835	2238	2237	2204

Conditions at the time saw demand higher than forecast. For the 1pm and 1.30 pm trading intervals demand was up to 136 MW higher than forecast four hours ahead. The 2 pm trading interval demand was close to forecast as was the price. Available capacity for all three trading intervals was close to forecast.

For the 1 pm and 1.30 pm trading intervals the four hour forecast price was significantly lower than forecast 12 hours ahead as a result of South Australian participants rebidding around 200 MW of capacity from high to low prices.

For the 1 pm trading interval, AGL rebid 65 MW at Torrens Island from \$80/MWh to the cap. This was effective for the 12.55 pm dispatch interval and the price increased to the \$13 099/MWh.

For the 1.30 pm trading interval, with no capacity available priced between \$578/MWh and \$13 099/MWh, a small increase in demand of 17 MW and a decrease in net imports by 5 MW saw the price increase from \$578/MWh to \$13 099/MWh.

Tuesday, 21 March

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
11 am	1587.51	423.23	350.69	1626	1546	1575	2048	2246	2297
11.30 am	2402.10	349.98	350.69	1653	1545	1590	2053	2259	2319

¹ <https://www.aer.gov.au/wholesale-markets/market-performance/fcas-prices-above-5000-mw-21-march-2017-sa>

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
Midday	1349.85	348.77	350.69	1628	1540	1613	1967	2265	2329
12.30 pm	936.42	349.98	484.99	1623	1540	1631	1956	2213	2321
1 pm	929.81	350.69	484.99	1574	1577	1660	2002	2167	2317
1.30 pm	621.17	300.28	484.99	1555	1570	1667	1983	2195	2360

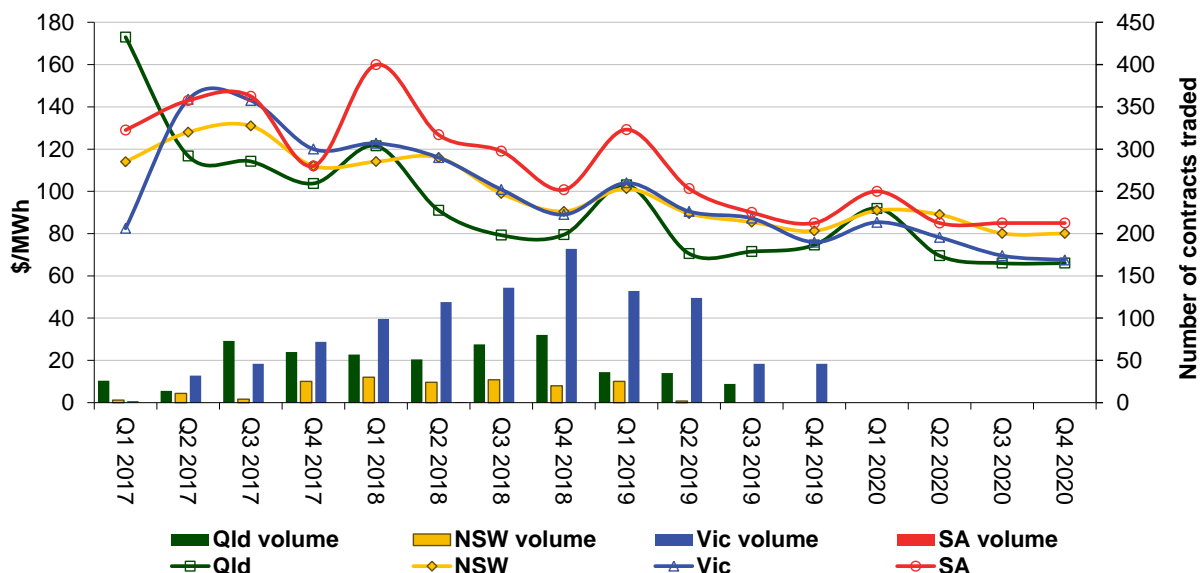
Conditions at the time saw demand higher up to 108 MW higher than forecast for the 11 am to 12.30 pm trading intervals. Demand for the 1 pm and 1.30 pm trading intervals were slightly lower than forecast. Available capacity was up to 298 MW lower than forecast four hours ahead, mainly due to wind generation being up to 264 MW lower than forecast.

From around 10 am low priced wind generation began falling at a faster rate than what was forecast. This decrease in low priced capacity and higher than forecast demand meant higher priced capacity had to be dispatched in its place. At the start of each of the trading intervals the price went high, ranging between \$3000/MWh and the price cap. In response to the high prices participants then rebid capacity from high to low prices resulting in low prices for the remainder of the trading intervals. The dispatch price fell to the price floor on 15 occasions during this time.

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.

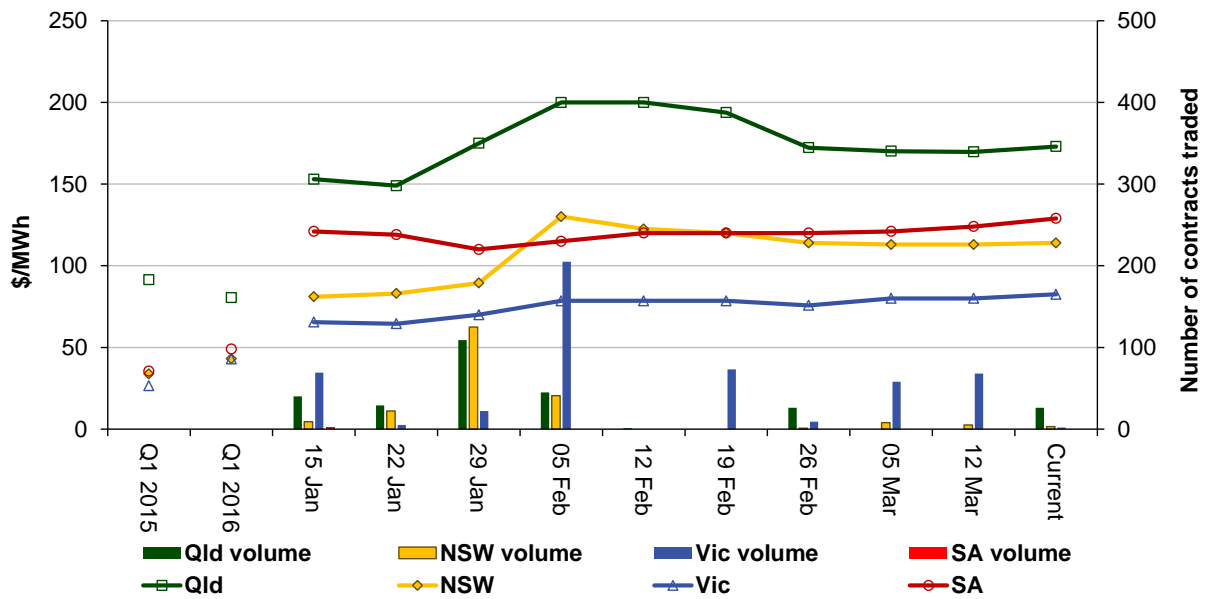
Figure 9: Quarterly base future prices Q1 2017 – Q4 2020



Source: ASXEnergy.com.au

Figure 10 shows how the price for each regional quarter 1 2017 base contract has changed over the last 10 weeks (as well as the total number of trades each week). The closing quarter 1 2015 and quarter 1 2016 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 2017 base contracts over the past 10 weeks (and the past 2 years)



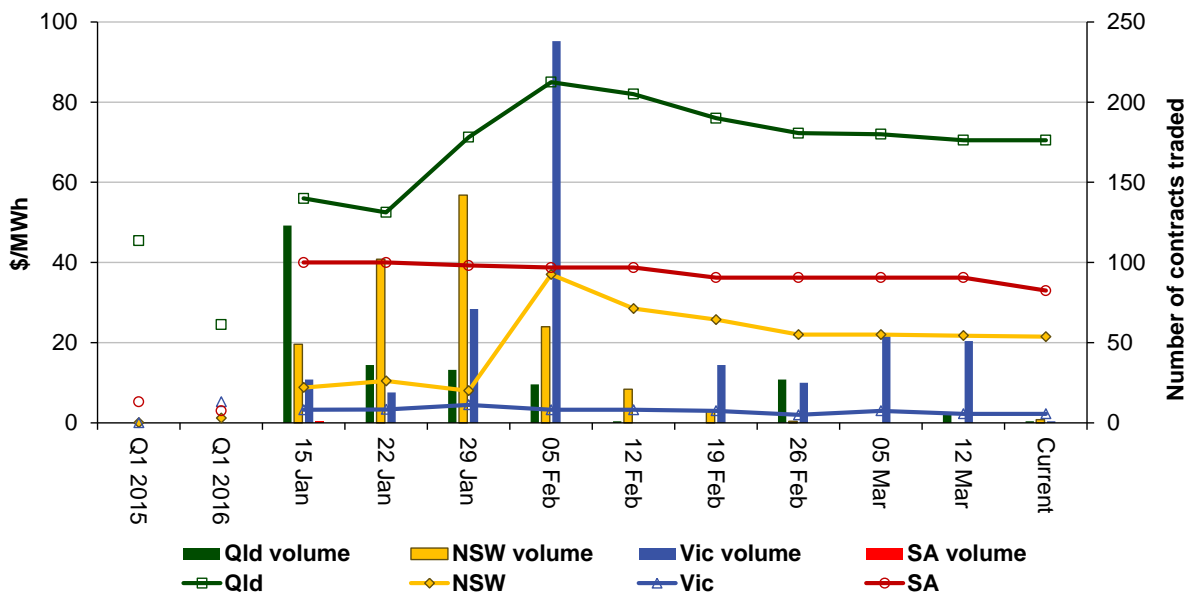
Note. Base contract prices are shown for each of the current week and the previous 9 weeks, with average prices shown for periods 1 and 2 years prior to the current year.

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 2017 cap contract has changed over the last 10 weeks (as well as the total number of trades each week). The closing quarter 1 2015 and quarter 1 2016 prices are also shown.

Figure 11: Price of Q1 2017 cap contracts over the past 10 weeks (and the past 2 years)



Source. ASXEnergy.com.au