

12 – 18 February 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 12 – 18 February 2017.

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

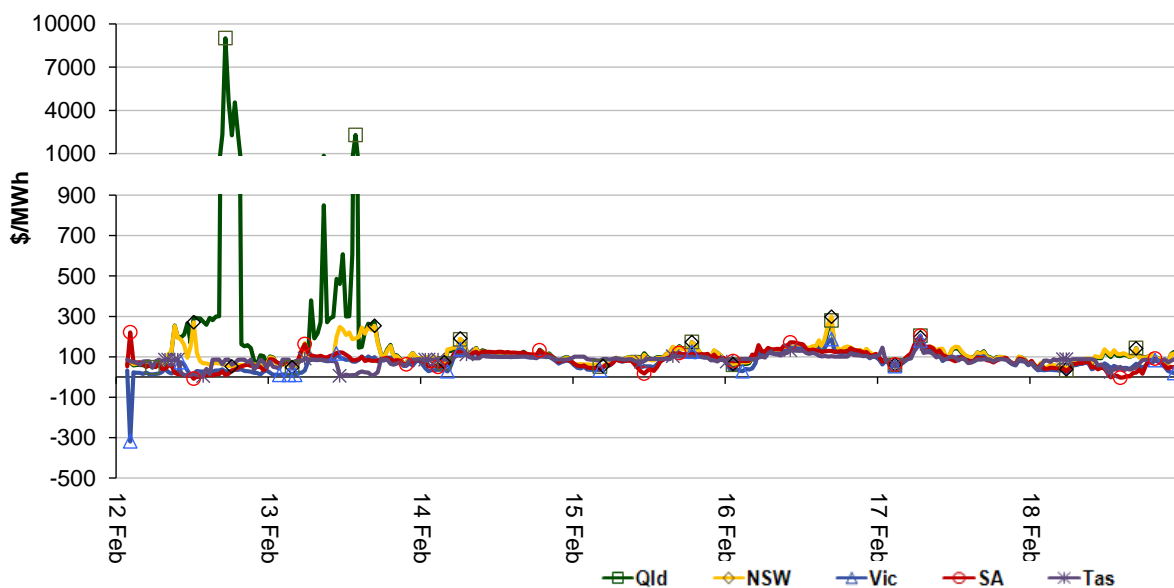


Figure 2 shows the volume weighted average (VWA) prices for the current week (with prices shown in Table 1) and the preceding 12 weeks, as well as the VWA price over the previous 3 financial years.

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

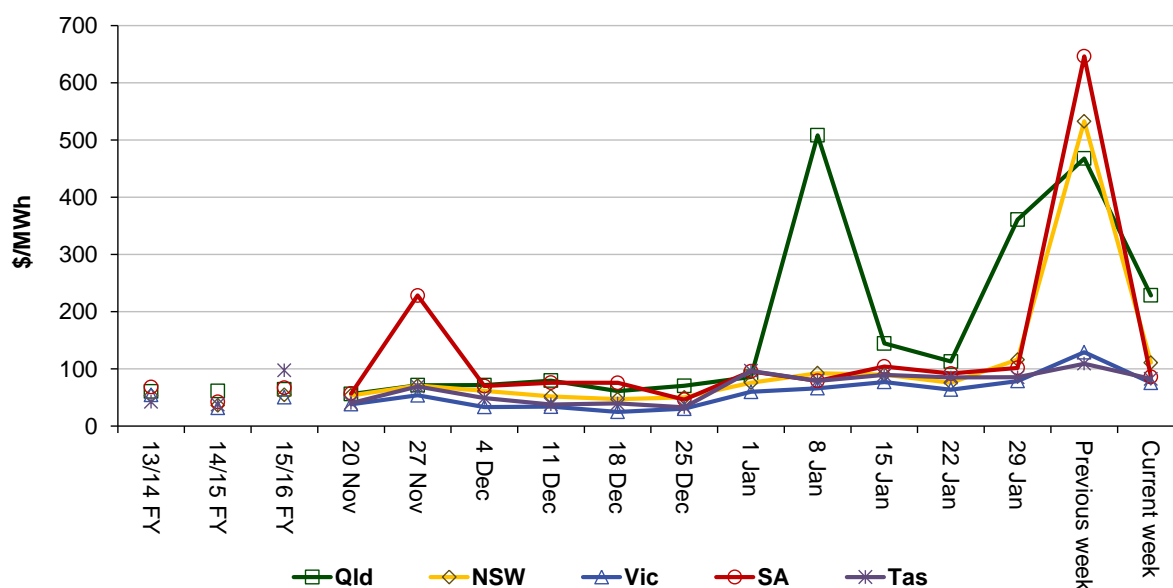


Table 1: Volume weighted average spot prices by region (\$/MWh)

Region	Qld	NSW	Vic	SA	Tas
Current week	228	111	76	86	82
15-16 financial YTD	55	45	43	61	70
16-17 financial YTD	111	85	51	125	55

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 306 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	5	12	0	2
% of total below forecast	38	39	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

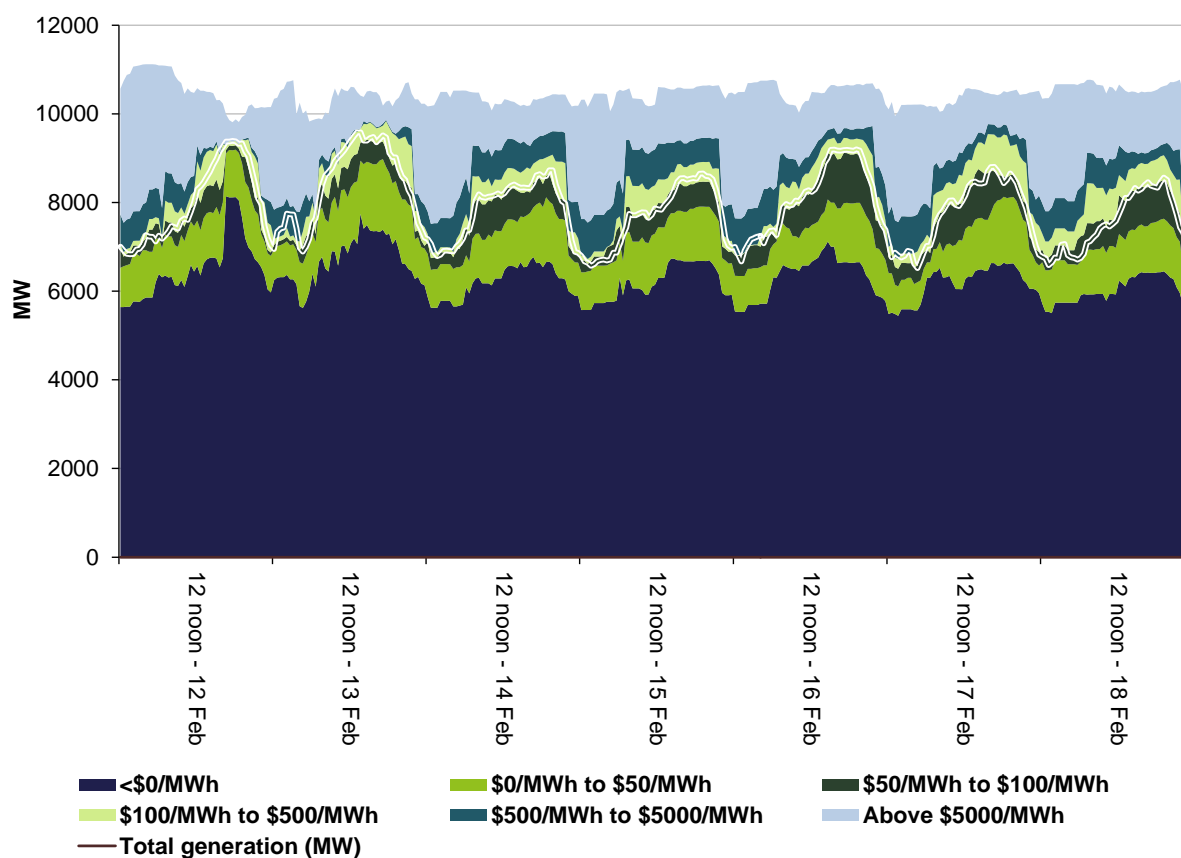


Figure 4: New South Wales generation and bidding patterns

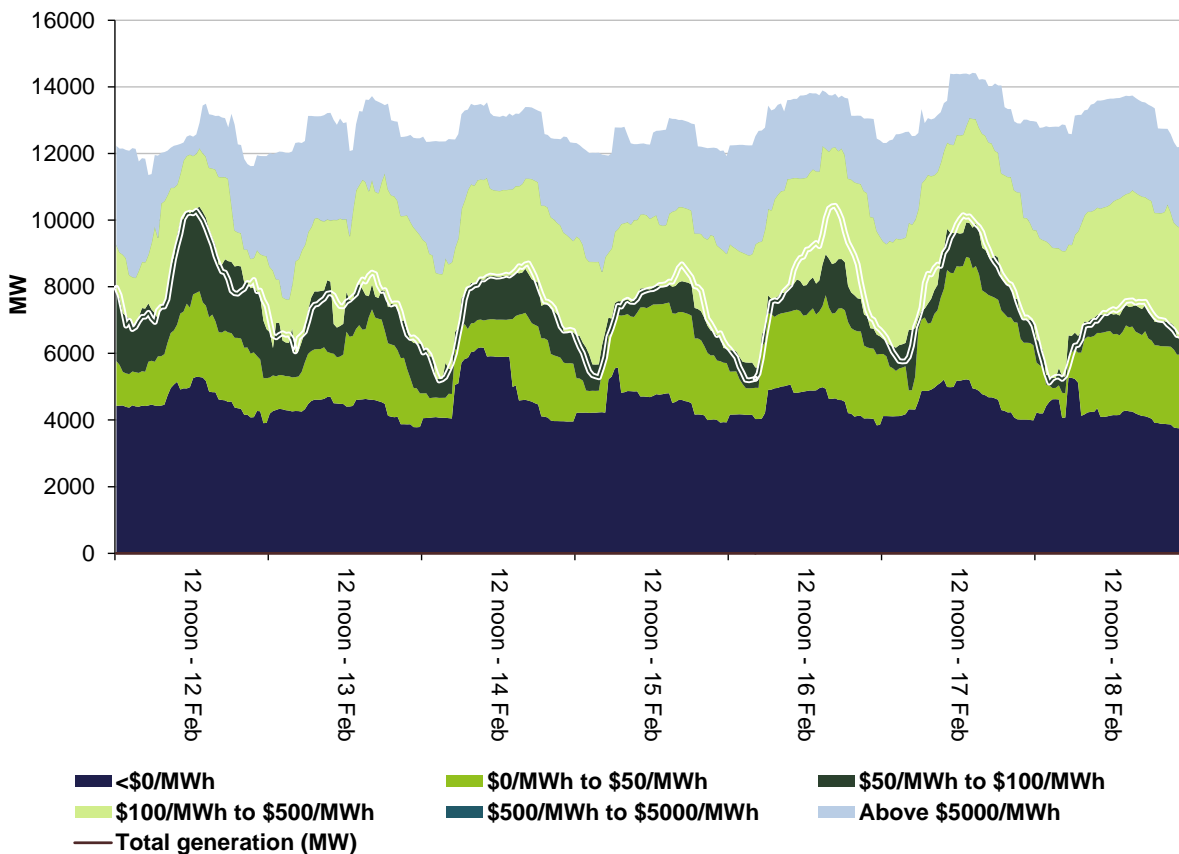


Figure 5: Victoria generation and bidding patterns

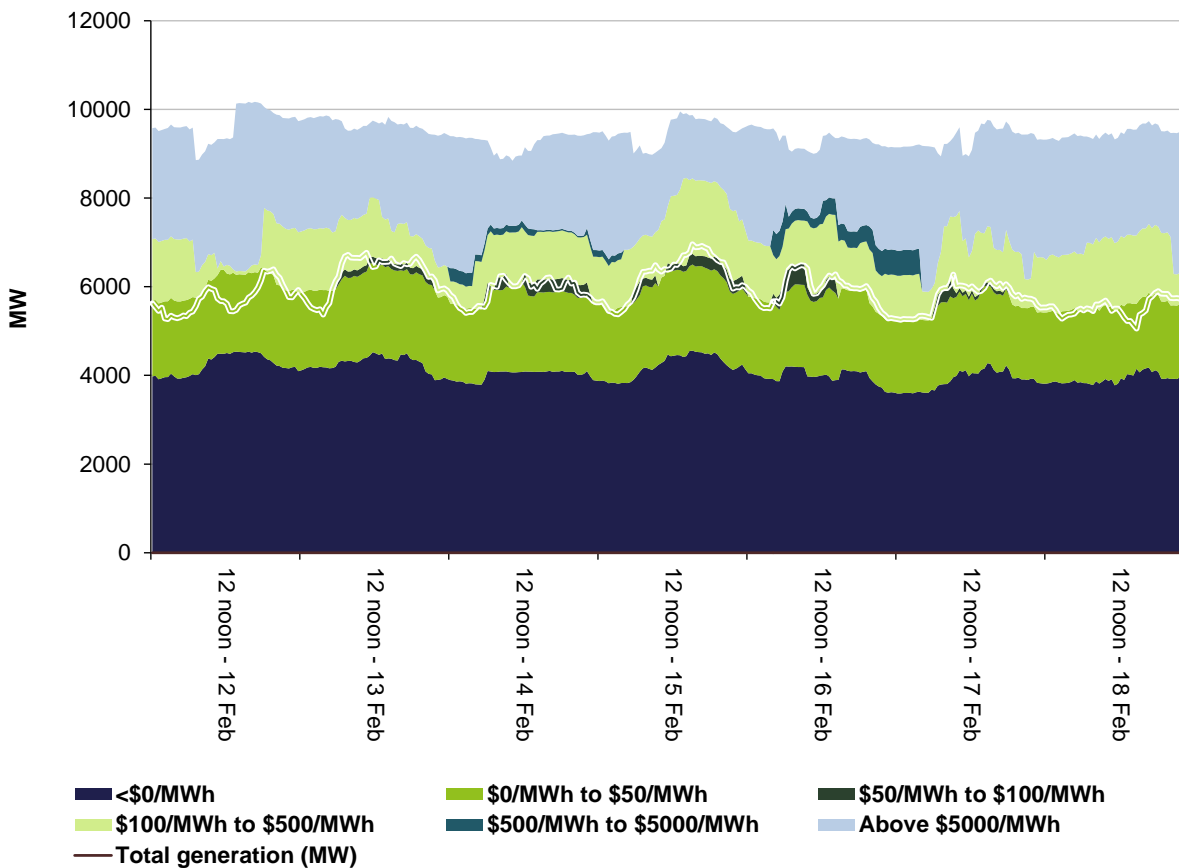


Figure 6: South Australia generation and bidding patterns

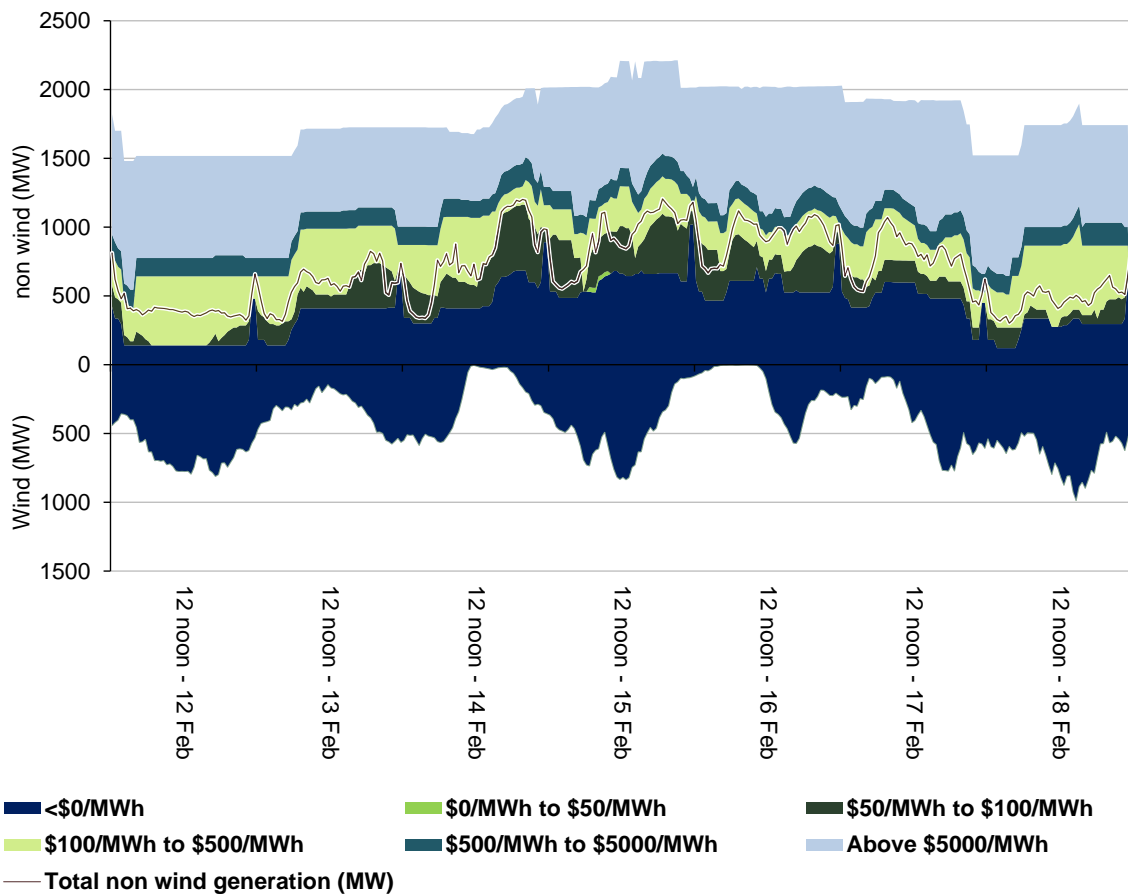
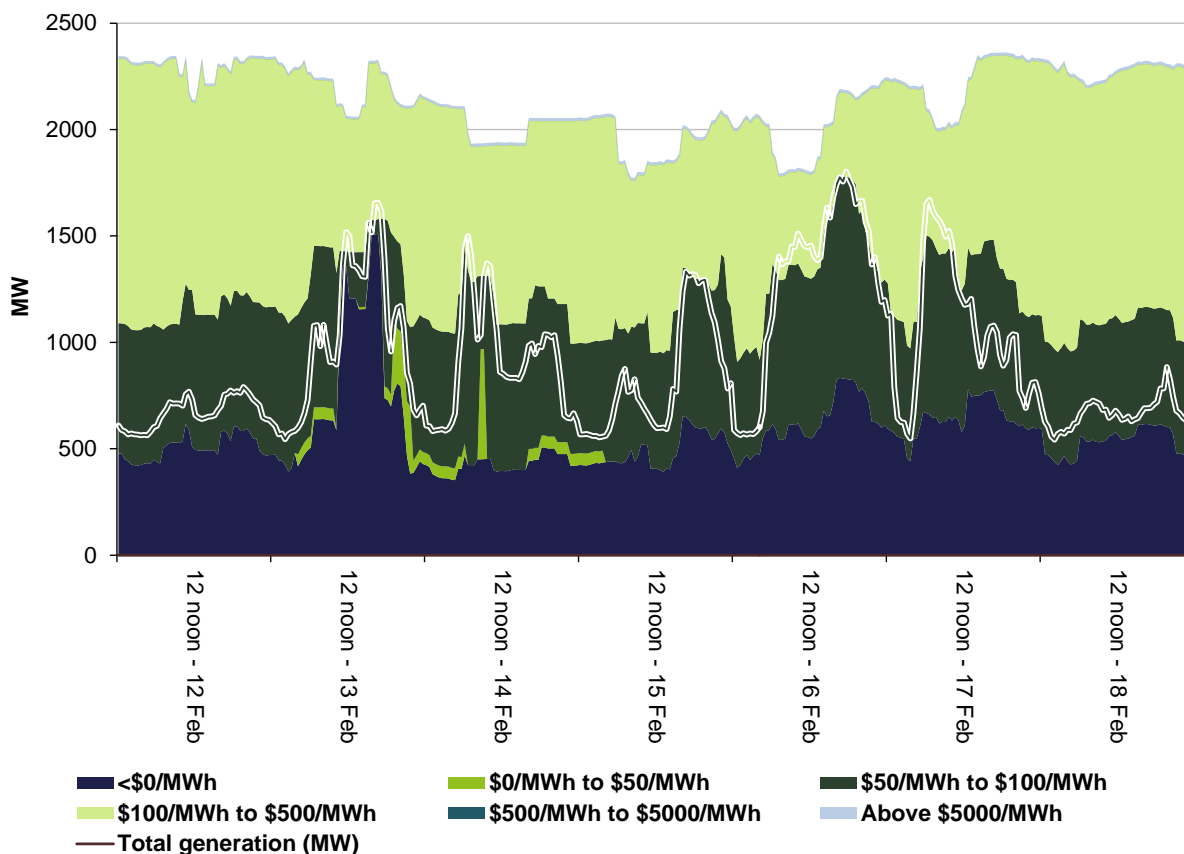


Figure 7: Tasmania generation and bidding patterns



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.

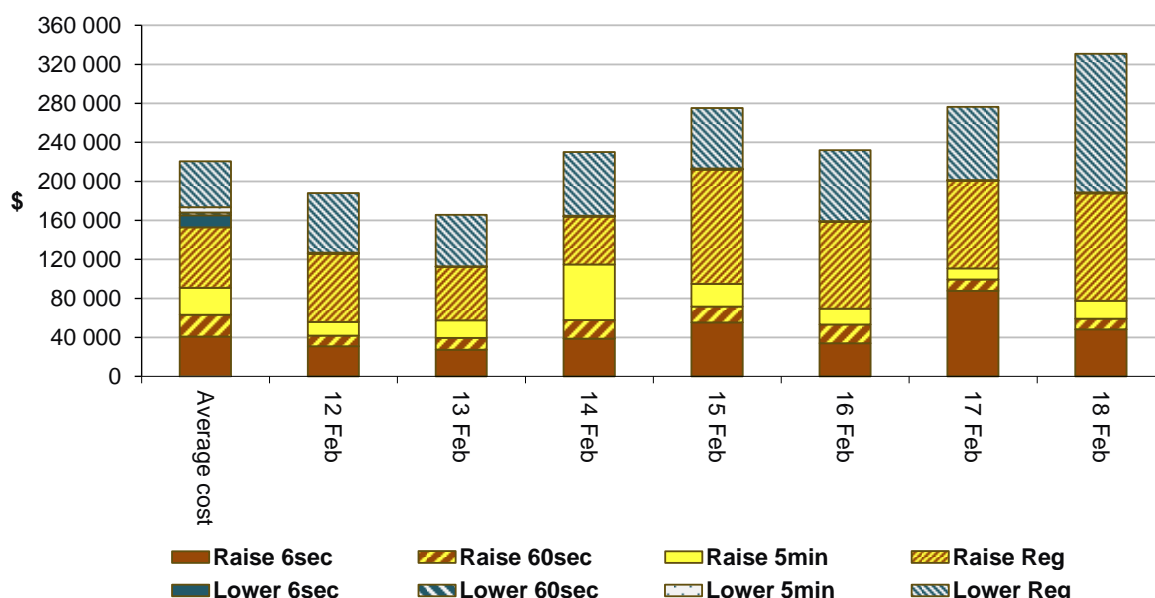
The Electricity Rules stipulate that generators pay for raise contingency services and customers pay for lower contingency services. Regulation services are paid for on a “causer pays” basis determined every four weeks by AEMO.

The total cost of FCAS on the mainland for the week was \$1 342 000 or less than one per cent of energy turnover on the mainland.

The total cost of FCAS in Tasmania for the week was \$355 500 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



Detailed market analysis of significant price events

Queensland

There were eight occasions where the spot price in Queensland was greater than three times the Queensland weekly average price of \$228/MWh and above \$250/MWh.

Sunday, 12 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
5 pm	2335.94	321.90	13 399.95	9260	9261	8987	10 034	10 616	10 711
5.30 pm	9004.95	290.05	12 000	9369	9266	8950	9880	10 631	10 726
6 pm	4621.88	290.05	12 000	9296	9184	8977	9812	10 617	10 762
6.30 pm	2259.16	290.00	12 000	9229	9113	9036	9828	10 622	10 817
7 pm	4551.58	290.05	12 000	9233	9226	9159	9842	10 627	10 802
7.30 pm	2261.72	290.00	13 399.95	9233	9216	9312	9917	10 661	10 870

The spot price exceeded \$5000/MWh for the 5.30 pm trading interval and in accordance with clause 3.13.7 of the Electricity Rules, the AER has issued a separate report into the circumstances that led to the spot price exceeding \$5000/MWh and covers all the above spot prices.¹

The report found that the high prices occurred because of record demand and a significant unexpected reduction in low priced local Queensland supply from around 4 pm.

Monday, 13 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
9 am	849.55	198.62	149.99	8216	8200	8180	9956	10 183	10 778
2 pm	2296.01	98.94	3500.69	9157	9033	9217	10 478	10 804	10 926

For the 9 am trading interval, demand was close to forecast while availability was around 230 MW lower than forecast four hours ahead. An outage on the Liddell to Muswellbrook line was forcing flows counter price into New South Wales.

For the 9 am dispatch interval, net exports increased by 156 MW. With both interconnectors operating at their limits local high priced generation set price. As a result, the price reached \$3501/MWh for the last dispatch interval.

For the 2 pm trading interval, demand was 124 MW higher and availability was 326 MW lower than that forecast four hours ahead. Rebidding of capacity from high to low prices led

¹ [Electricity spot prices above \\$5000/MWh - Queensland, 12 February 2017](#)

to the four hour forecast price being lower than the 12 hour forecast price. Exports were forced into New South Wales across both QNI and the Terranora Interconnector.

Given that there was little capacity available priced between \$300/MWh and \$13 000/MWh, price volatility is not unexpected. At 1.40 pm the dispatch price increased from \$300/MWh to \$13 000/MWh due to an increase in demand (46 MW) and exports (42 MW). Prices then returned to previous levels as demand and exports decreased.

Victoria

There was one occasion where the spot price in Victoria was below -\$100/MWh.

Sunday, 12 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
2.30 am	-319.03	10.50	25.20	3482	3359	3485	9559	9592	9625

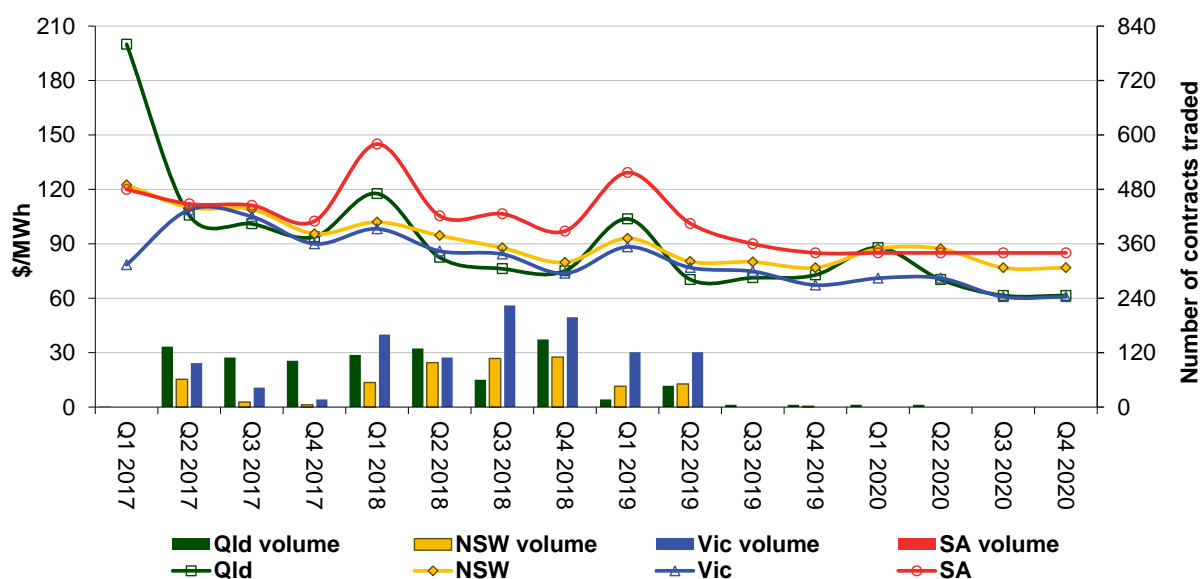
Demand was 123 MW lower than forecast and availability was close to that forecast four hours ahead.

For the 2.10 am dispatch interval, local generation decreased by 295 MW due to a fall in exports into New South Wales. With higher priced generation ramp down constrained and unable to set price, the price fell to the floor for two dispatch intervals. The price then returned to between \$9/MWh and \$25/MWh for the remaining dispatch intervals when generation was no longer ramp rate limited and able to set price.

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

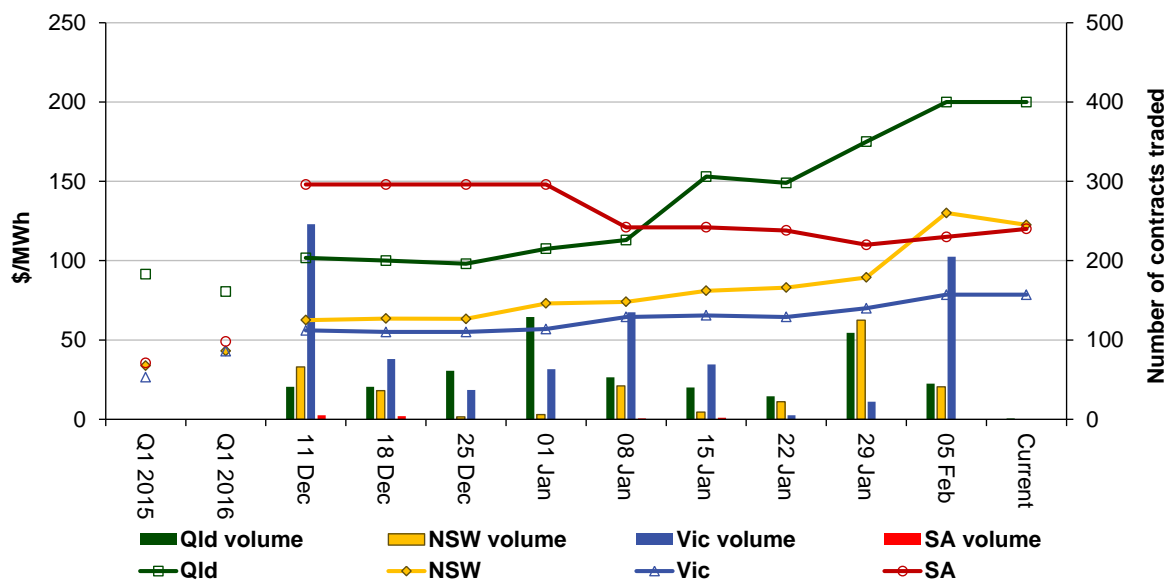


Source: ASXEnergy.com.au

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)



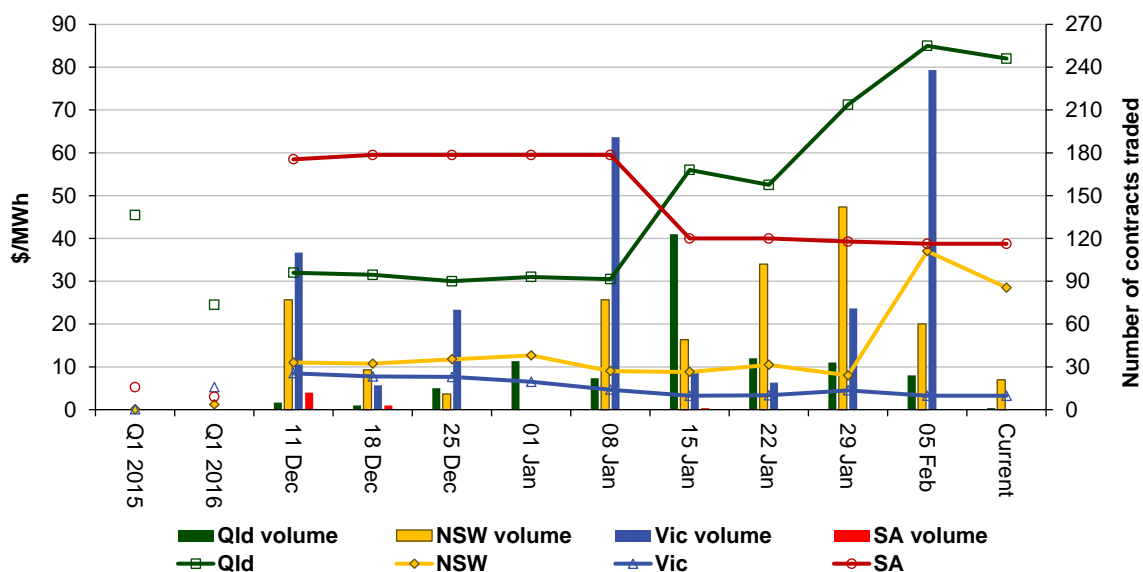
Note. Base contract prices are shown for each of the current week and the previous 9 weeks, with average prices shown for periods 1 and 2 years prior to the current year.

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