Electricity Report

26 February – 4 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 26 February – 4 March 2017.

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

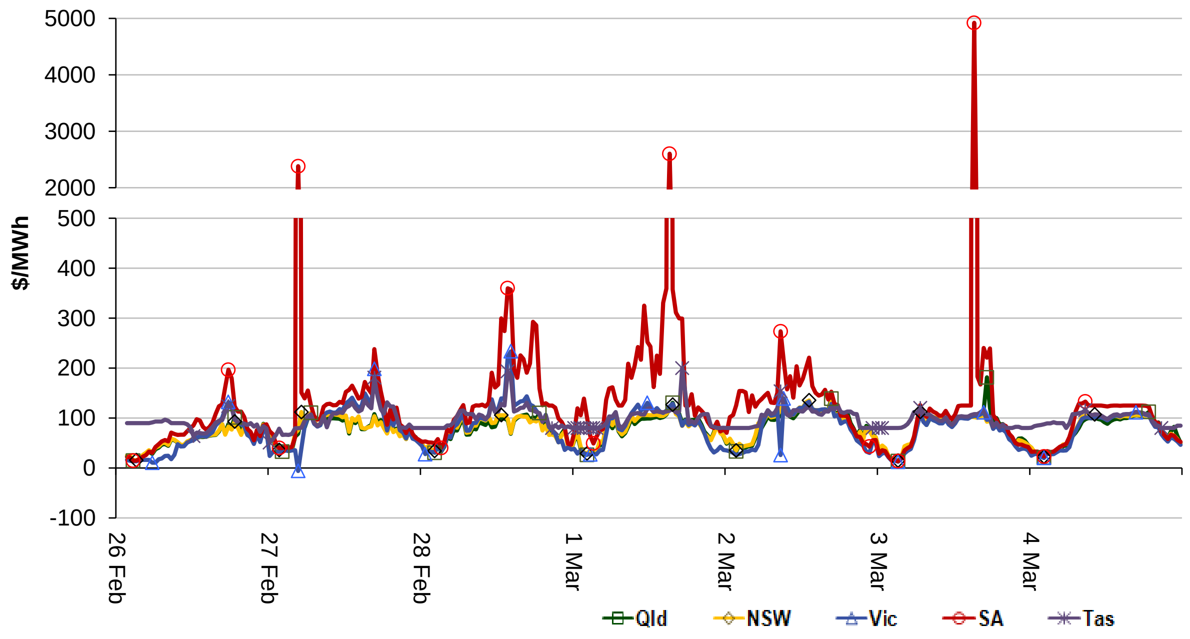


Figure 2 shows the volume weighted average (VWA) prices for the current week (with prices shown in Table 1) and the preceding 12 weeks, as well as the VWA price over the previous 3 financial years.

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

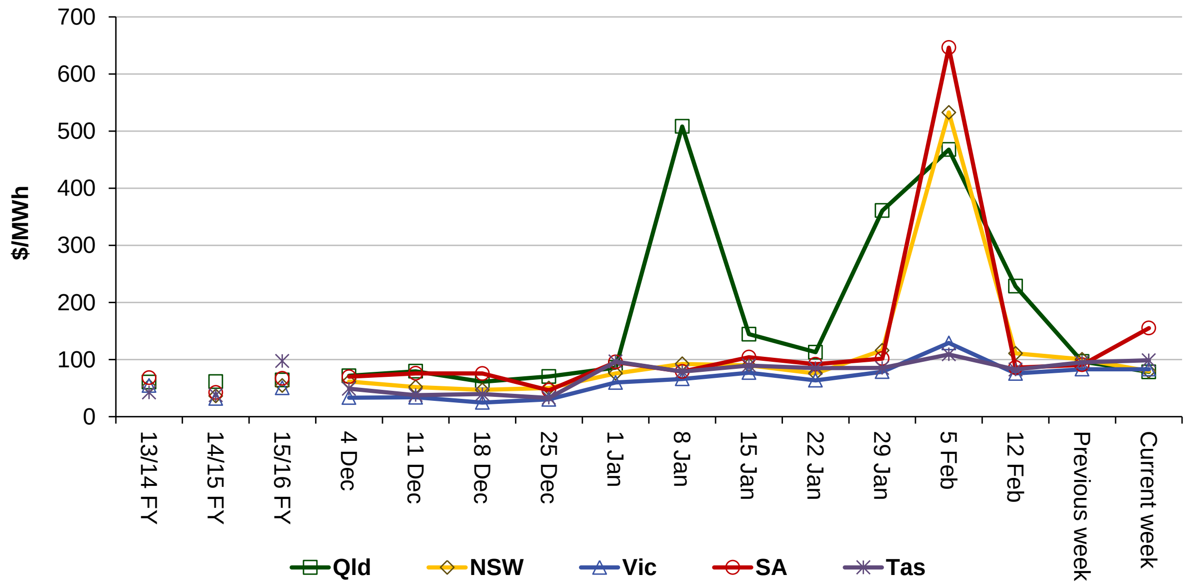


Table 1: Volume weighted average spot prices by region ($/MWh)

Region	Qld	NSW	Vic	SA	Tas
Current week	78	79	83	155	99
15-16 financial YTD	58	46	43	61	78
16-17 financial YTD	109	85	53	125	57

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 265 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	6	37	0	2
% of total below forecast	40	14	0	1

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

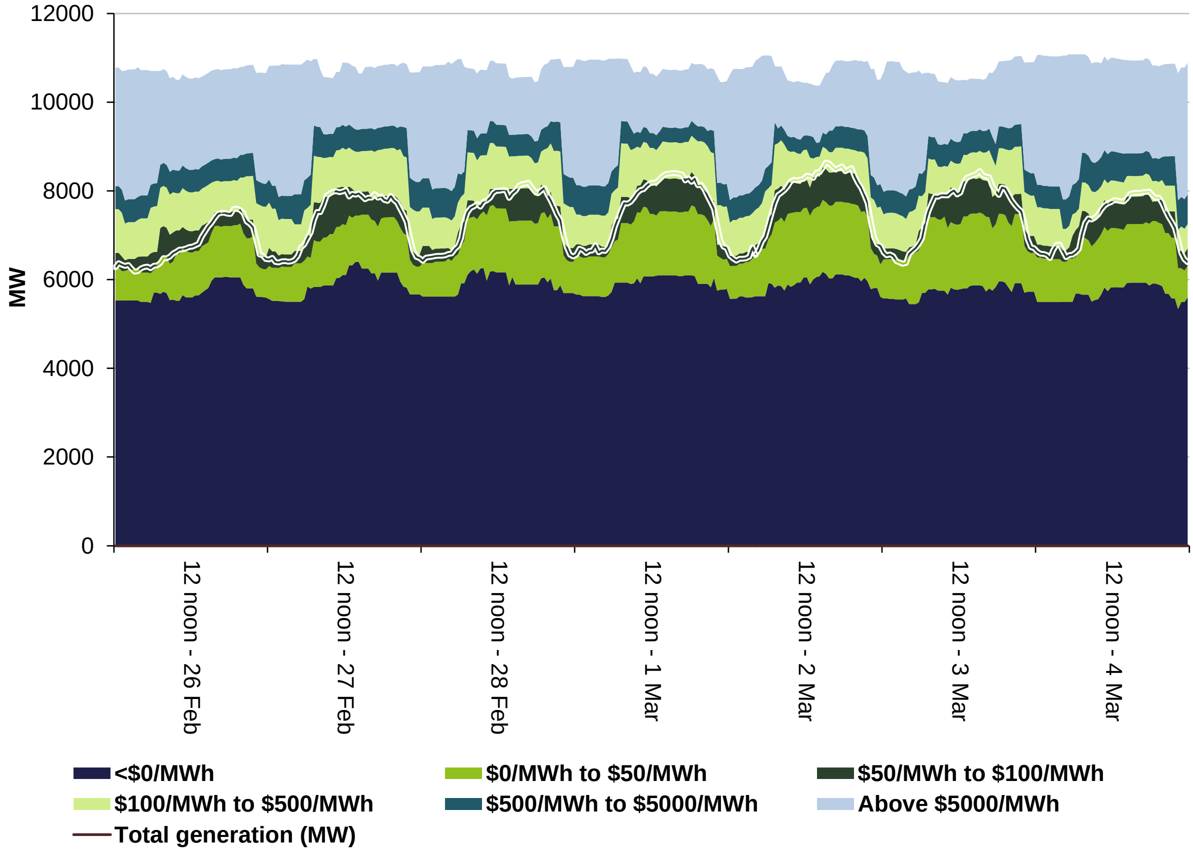


Figure 4: New South Wales generation and bidding patterns

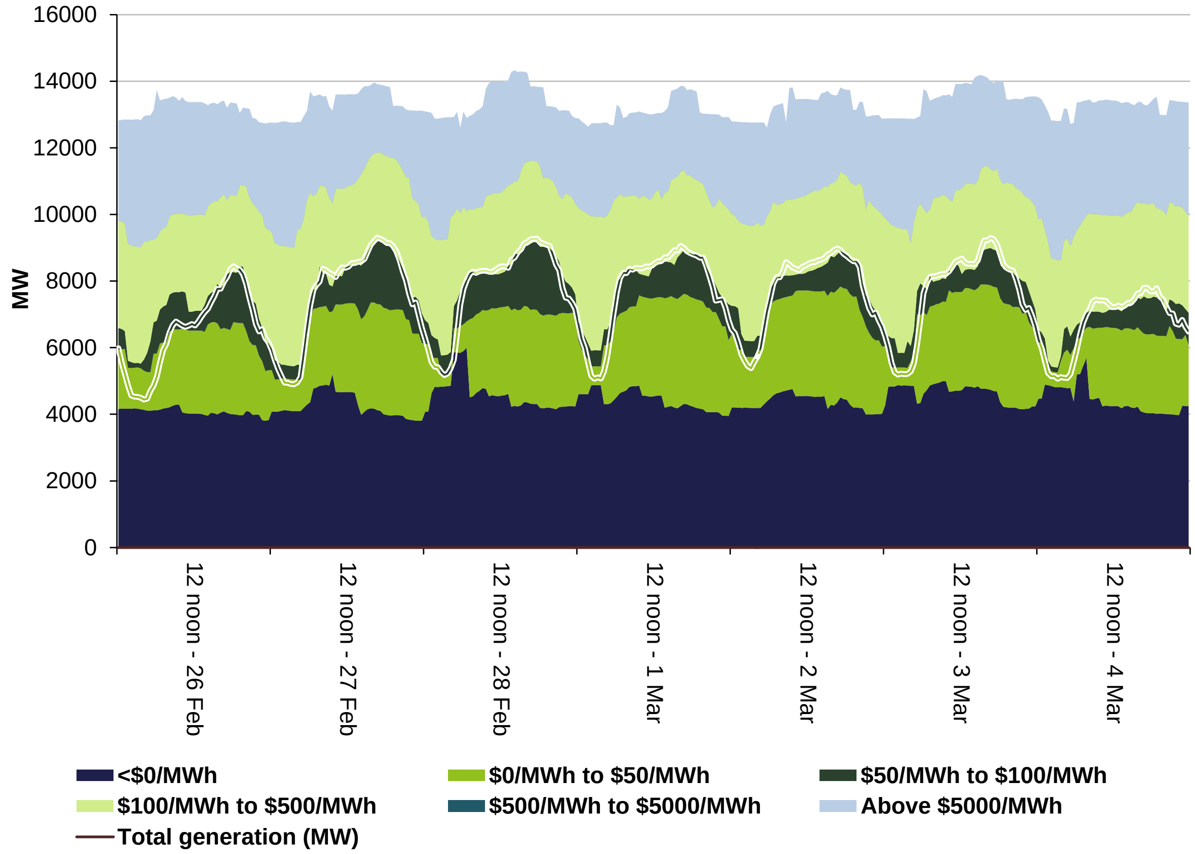


Figure 5: Victoria generation and bidding patterns

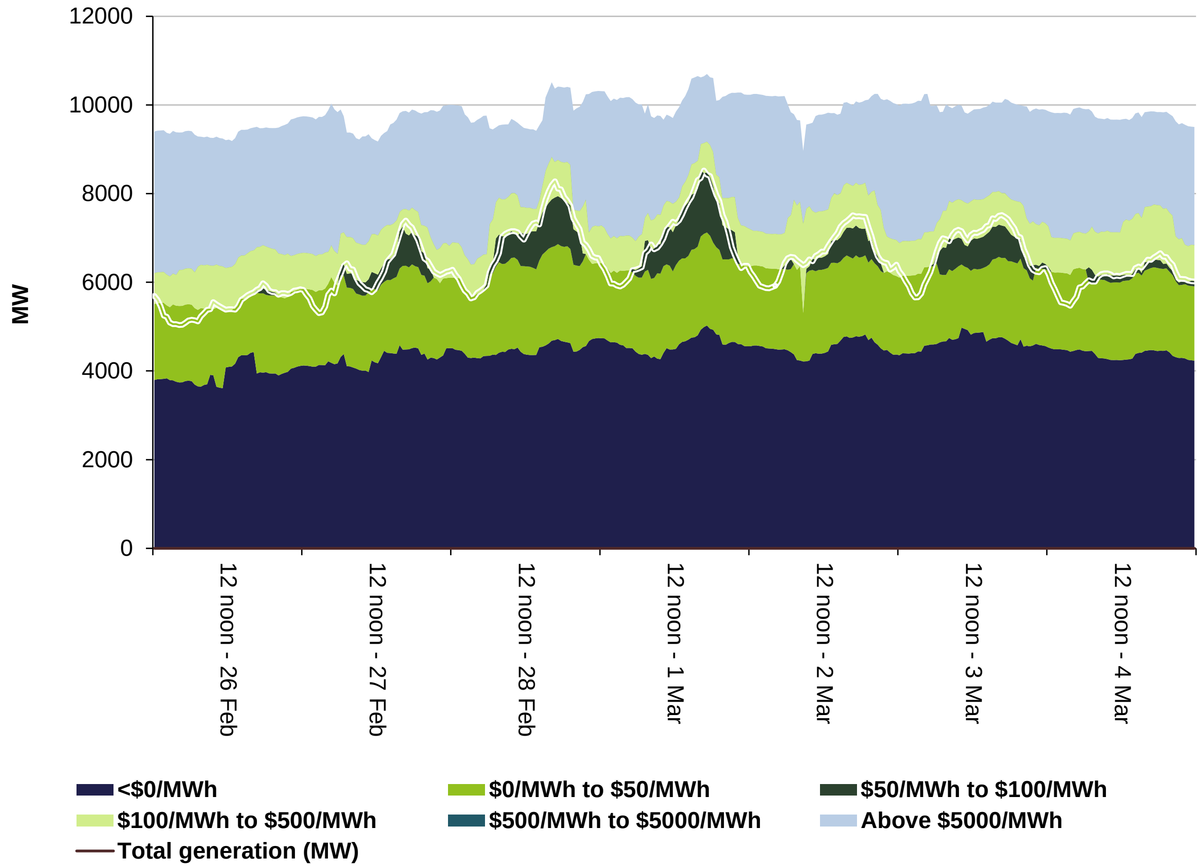


Figure 6: South Australia generation and bidding patterns

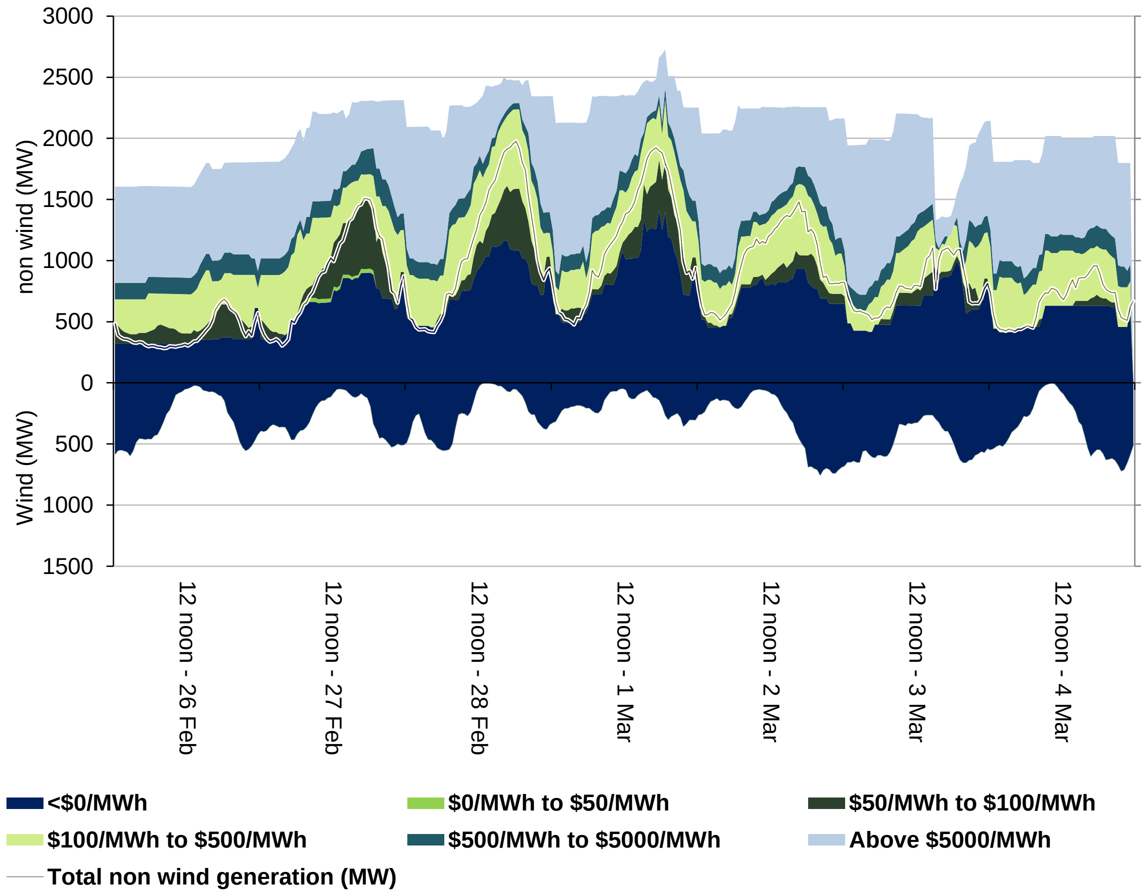
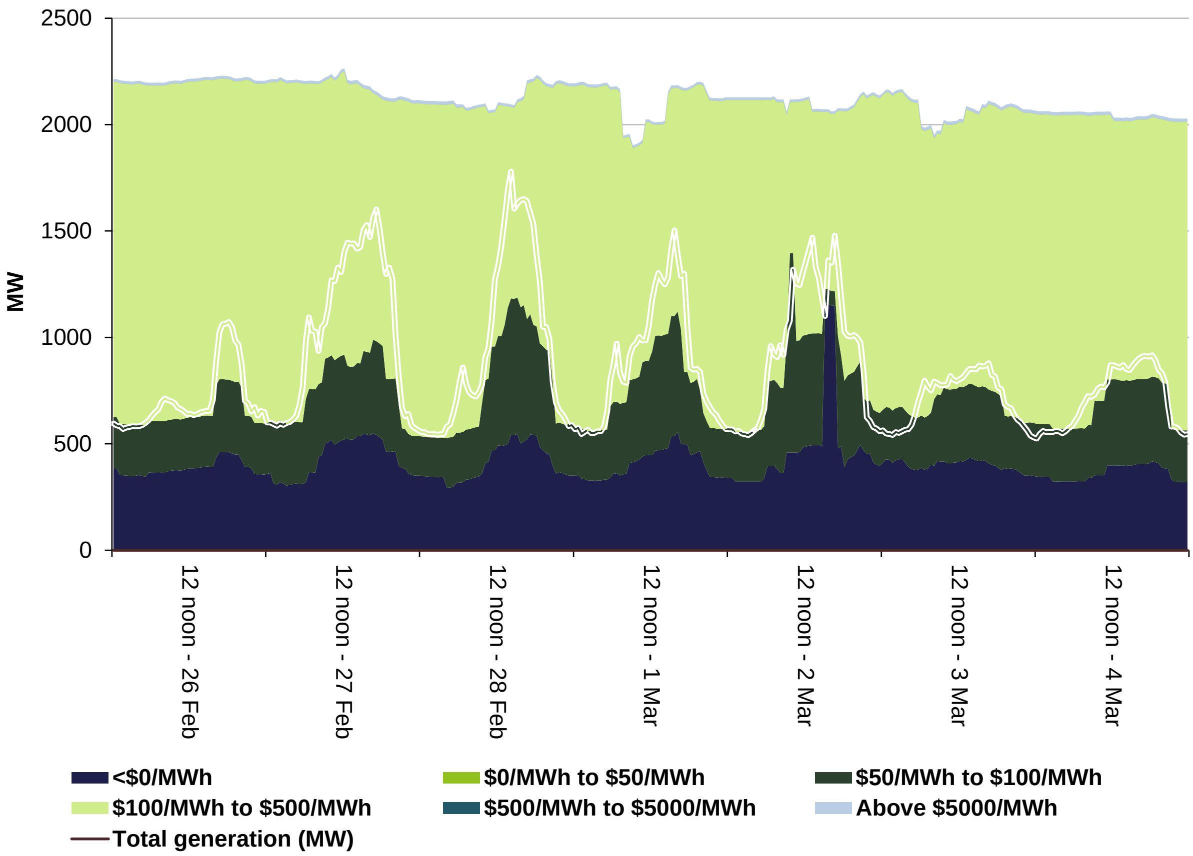


Figure 7: Tasmania generation and bidding patterns



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.

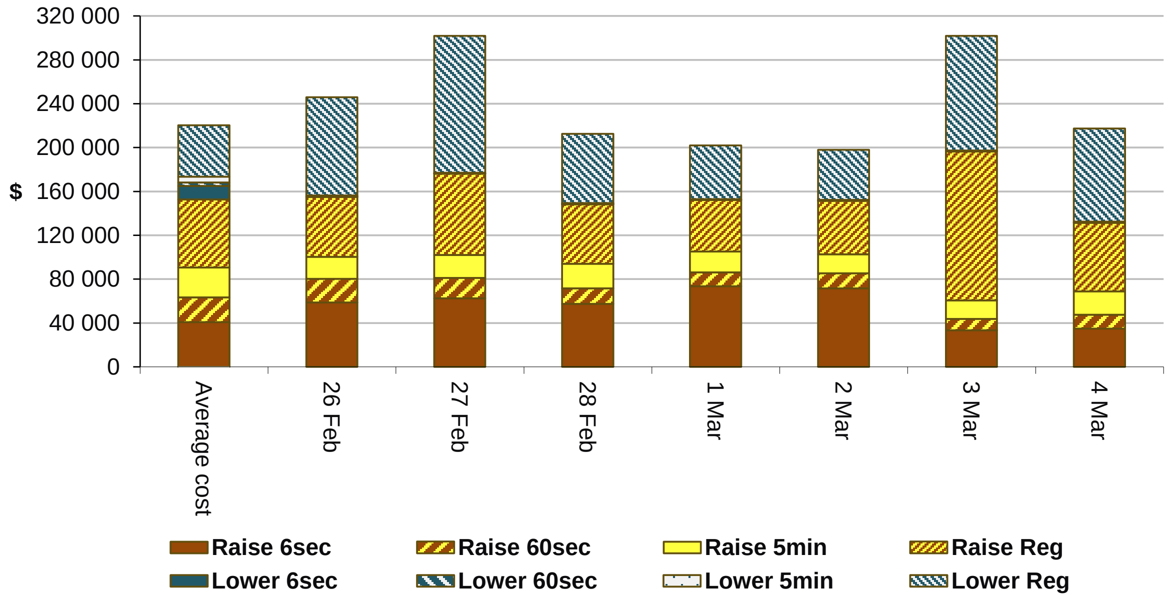
The Electricity Rules stipulate that generators pay for raise contingency services and customers pay for lower contingency services. Regulation services are paid for on a “causer pays” basis determined every four weeks by AEMO.

The total cost of FCAS on the mainland for the week was $1 291 500 or less than one per cent of energy turnover on the mainland.

The total cost of FCAS in Tasmania for the week was $387 500 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

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 $155/MWh and above $250/MWh.

Monday, 27 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 am	2380.81	44.71	32.09	1183	1202	1198	2192	2233	2263

Conditions at the time saw demand and available capacity close to that forecast four hours ahead.

At around 5 am, there was an unplanned outage on the APD – Heywood – Mortlake No. 2 500 kV line in Victoria. AEMO invoked constraints limiting imports into South Australia across the Heywood interconnector. This saw imports reduce from 550 MW at 4.55 am to 277 MW at 5 am. Local generation increased by 182 MW to meet the step change in imports but with all low priced generation either ramp up constrained or fully dispatched, the 5 pm dispatch price reached the cap.

Wednesday, 1 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
3.30 pm	2603.24	1750.05	485.69	2481	2508	2502	2462	2444	2458

Conditions at the time saw demand and available capacity close to that forecast four hours ahead. High temperatures approaching 39 degrees in Adelaide drove high demand on the day.

For the 3.25 pm dispatch interval, Origin Energy withdrew 56 MW of capacity priced below $200/MWh at Quarantine power station. The reason given was “1512P change in avail - gas pressure sl”. Also during this dispatch interval, net imports into South Australia reduced by 20 MW and demand increased by 40 MW.

With only 55 MW of capacity available within five minutes priced between $420/MWh and $14 000/MWh the dispatch price increased from $419/MWh at 3.20 pm to $14 000/MWh at 3.25 pm.

Friday, 3 March

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	4921.39	124.99	124.99	1684	1866	1997	1989	2445	2431

Conditions at the time saw demand 182 MW below forecast and available capacity 456 MW lower than forecast four hours ahead.

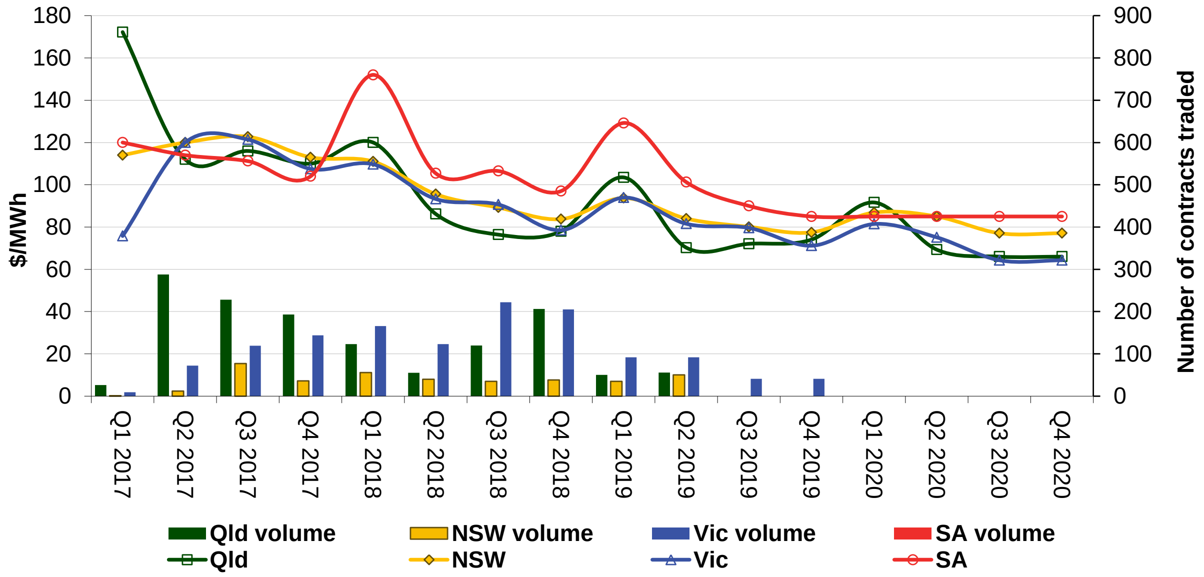
From 3.03 pm, a number of faults at Torrens Island switchyard led to the loss of over 800 MW of generation at Torrens Island and at Pelican Point. The sudden loss of generation led to imports into South Australia increasing across both interconnectors above safe operating limits. The faults led to voltage disturbances which resulted in a demand reduction of around 300 MW. For a more detailed description of the events on the day, please see the Fault at Torrens Island switchyard and loss of multiple generating units on 3 March 2017 report, published by AEMO.

The rebidding of these generators unavailable became effective from 3.20 pm and with all remaining capacity in the region either fully dispatched or requiring more than five minutes to start the price went to the price cap for 3.20 pm and 3.25 pm. The 3.30 pm dispatch price decreased to $579/MWh when more generation became available.

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.

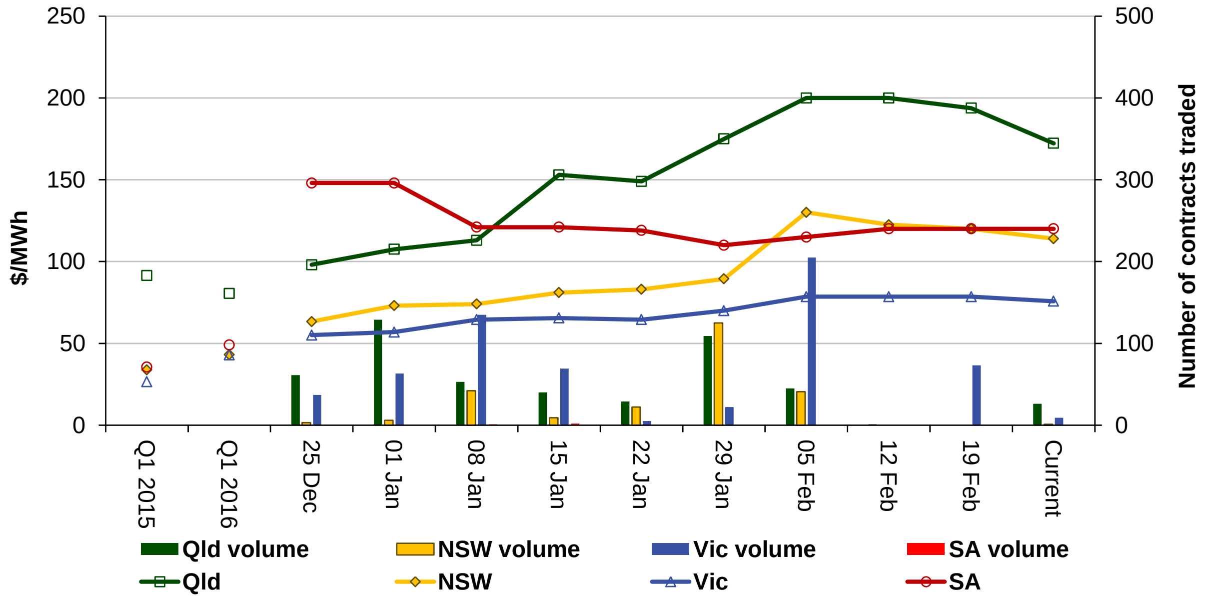
Figure 9: Quarterly base future prices Q1 2017 – Q4 2020



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)



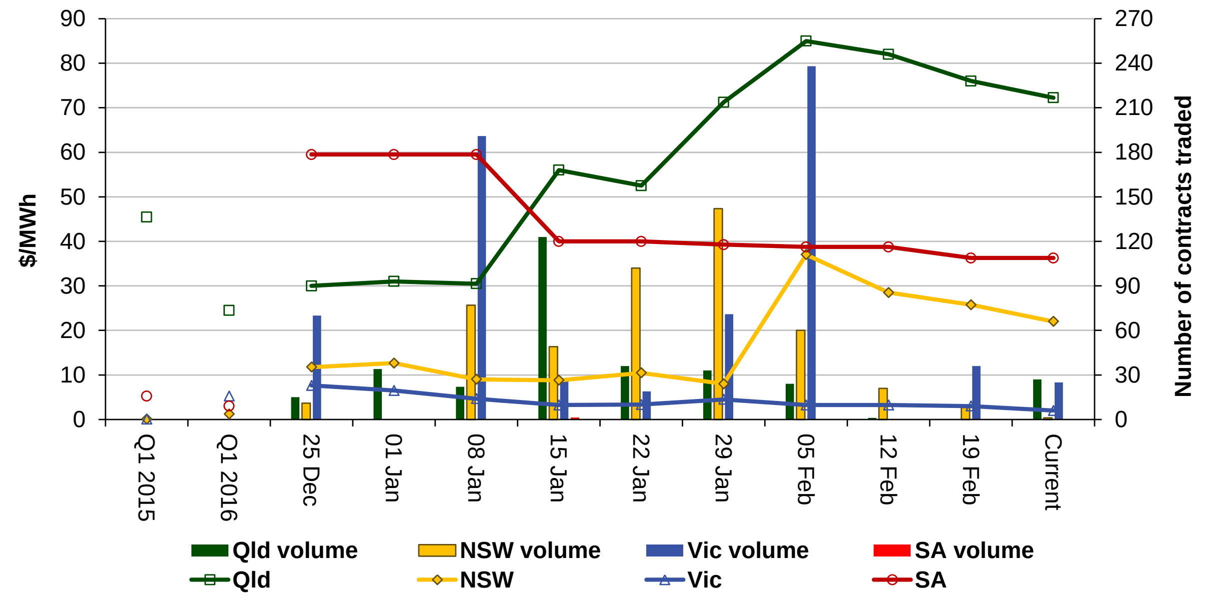
Note. Base contract prices are shown for each of the current week and the previous 9 weeks, with average prices shown for periods 1 and 2 years prior to the current year.

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

Australian Energy Regulator
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