

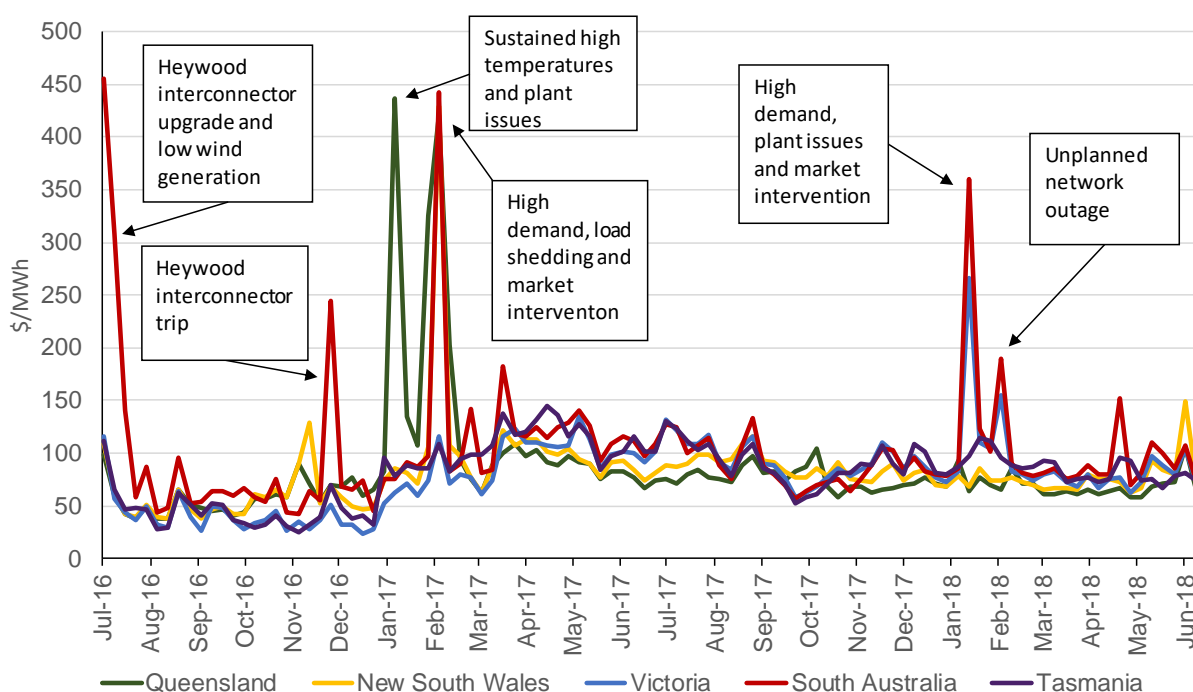
## 1 - 7 July 2018

### 2017/18 Financial Year in Focus

To mark the end of the 2017/18 financial year, this report provides an overview of financial year figures for two important measures regularly featured in our weekly reports: average spot prices and trading intervals in breach of our reporting thresholds.

#### Spot prices

#### Focus Figure 1: Weekly average spot prices July 2016 to end June 2018



Focus Figure 1 shows that, in general, weekly average spot prices across the NEM began increasing in January 2017 and have remained relatively aligned and at higher levels since then.

In March 2018 we provided advice to the Council of Australian Governments on any factors affecting the efficient functioning of the wholesale energy markets. This was in light of the March 2017 closure of Engie’s 1600 MW brown coal Hazelwood power station in Victoria (the *Hazelwood advice* report).

The *Hazelwood advice* report concluded that an increase in output from gas generators in Victoria and South Australia, and black coal generators in New South Wales and Queensland, was required to meet the reduction in output resulting from the closure of the Hazelwood power station. The increase in output of the gas and black coal generators also coincided with an increase in fuel costs of some of these generators which led to an increase in wholesale prices across the NEM (as shown in Focus Figure 1).

Focus Table 1 shows average volume weighted average spot prices across the NEM for the 2016-17 and 2017-18 financial years. South Australia recorded the highest volume weighted average price for 2017-18 (at \$109/MWh) while Queensland recorded the lowest (at \$75/MWh). Focus Table 1 shows that, compared to the 2016/17 financial year, 2017/18 financial year average prices increased in Victoria and Tasmania by 43 per cent and 15 per cent respectively, and fell in Queensland, NSW and SA by 27 per cent, 4 per cent and 12 per cent respectively.

**Focus Table 1: Volume weighted average spot prices by region**

Region	Qld	NSW	Vic	SA	Tas
16-17 financial year	103	88	70	123	76
17-18 financial year	75	85	99	109	88
<i>Change (\$)</i>	-28	-4	30	-14	12
<i>Change (%)</i>	-27%	-4%	43%	-12%	15%

Part of the decrease in financial year average prices in Queensland may be due to the Queensland Government's directive to Stanwell Corporation in June 2017 to undertake strategies to place downward pressure on wholesale prices.<sup>1</sup> Focus Figure 1 shows that there were fewer high price events in South Australia in the 2017/18 financial year, which may help to explain lower average prices in that region.

### Number of trading intervals that exceeded reporting thresholds

In our analysis section we report on spot prices greater than three times the weekly average price and above \$250/MWh, and spot prices less than \$-100/MWh. Focus Table 2 shows that, compared to 2016/17, in 2017/18 there were fewer trading intervals in each region where the spot price exceeded three times the weekly average and was above \$250/MWh.

Focus Table 2 also shows there were more spot prices below \$-100/MWh in Queensland and South Australia and fewer in 2017/18 than 2016/17 in Victoria and Tasmania.

**Focus Table 2: Number of trading intervals which exceeded reporting threshold, by region**

	Region	Qld	NSW	Vic	SA	Tas
3x VWA and >\$250/MWh	16-17 financial year	166	183	106	234	109
	17-18 financial year	26	67	38	78	61
	<i>Change</i>	-140	-116	-68	-156	-48
<\$-100/MWh	16-17 financial year	2	0	6	8	3
	17-18 financial year	14	0	2	44	1
	<i>Change</i>	12	0	-4	36	-2

### Increase in market price cap and cumulative price threshold

On 1 July 2018, the market price cap increased from \$14 200/MWh to \$14 500/MWh and the cumulative price threshold increased from \$212 800 to \$216 900.

<sup>1</sup> <http://statements.qld.gov.au/Statement/2017/6/5/palaszczuk-government-powers-up-an-energy-and-jobs-bonanza>

## 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 1 - 7 July 2018.

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

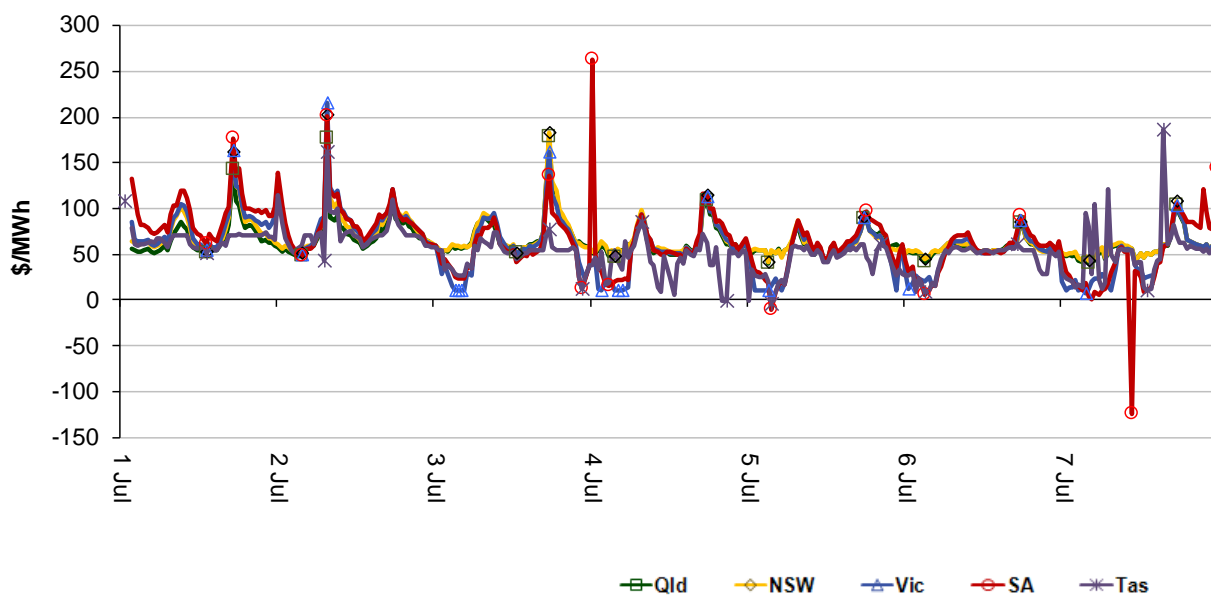
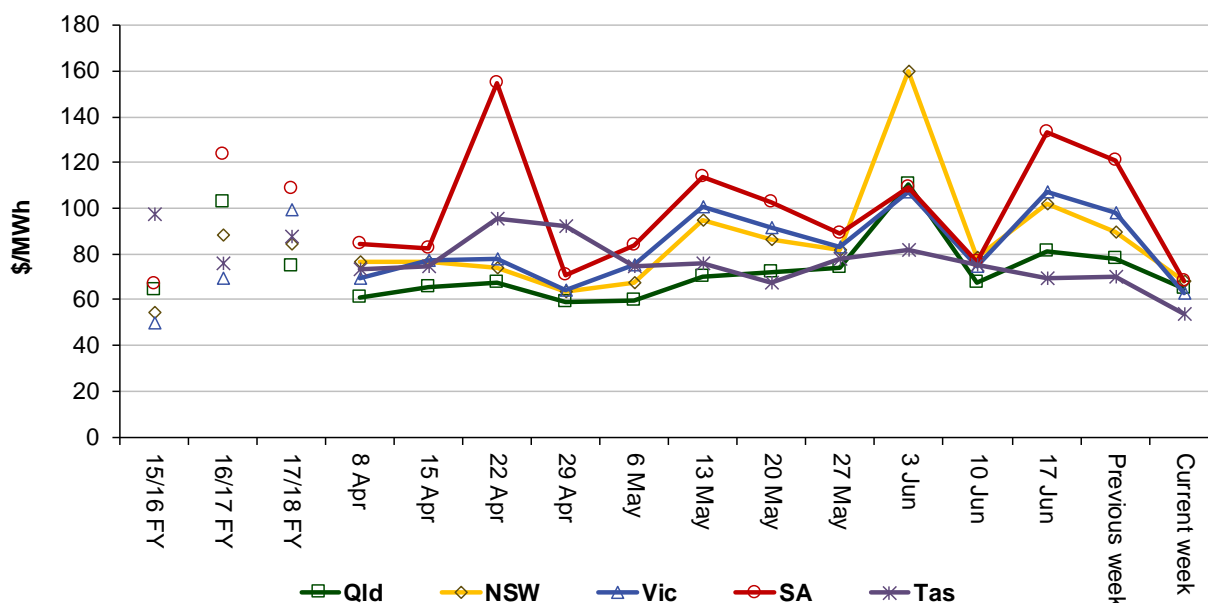


Figure 2 shows the volume weighted average (VWA) prices for the current week (with prices shown in Table 1) and the preceding 12 weeks, as well as the VWA price over the previous 3 financial years.

**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	65	68	63	68	54
17-18 financial YTD	76	91	133	128	130
18-19 financial YTD	65	68	63	68	54

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 134 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**

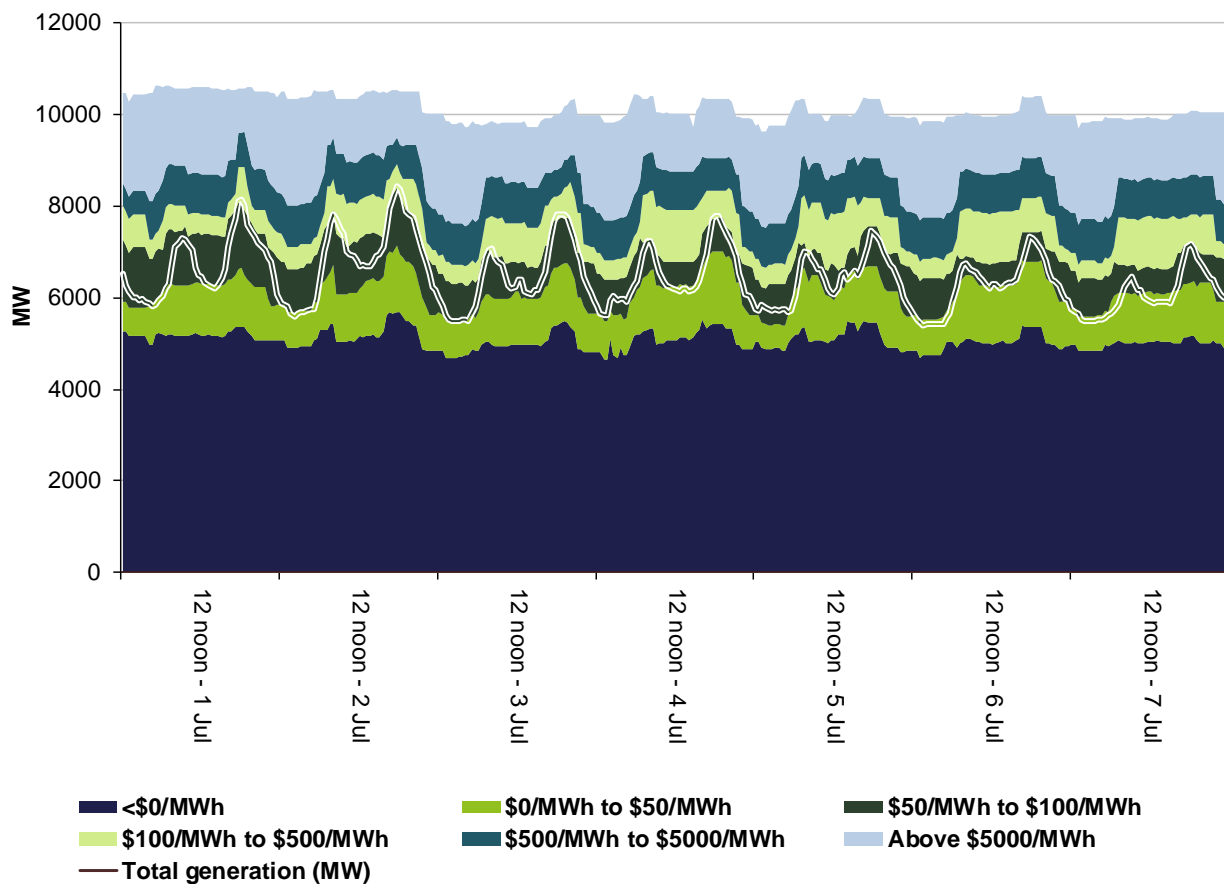
	Availability	Demand	Network	Combination
% of total above forecast	6	19	0	4
% of total below forecast	17	44	0	10

Note: Due to rounding, the total may not be 100 per cent.

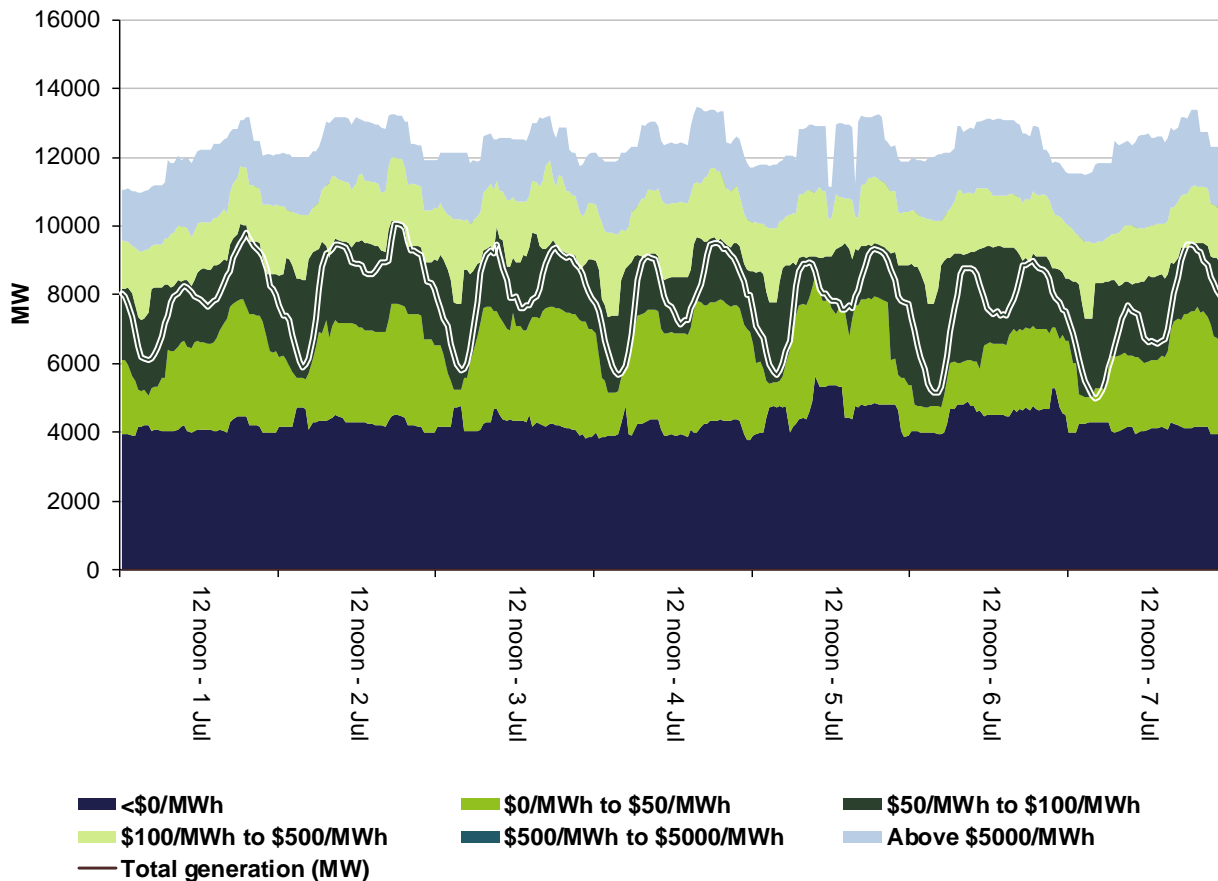
## Generation and bidding patterns

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.

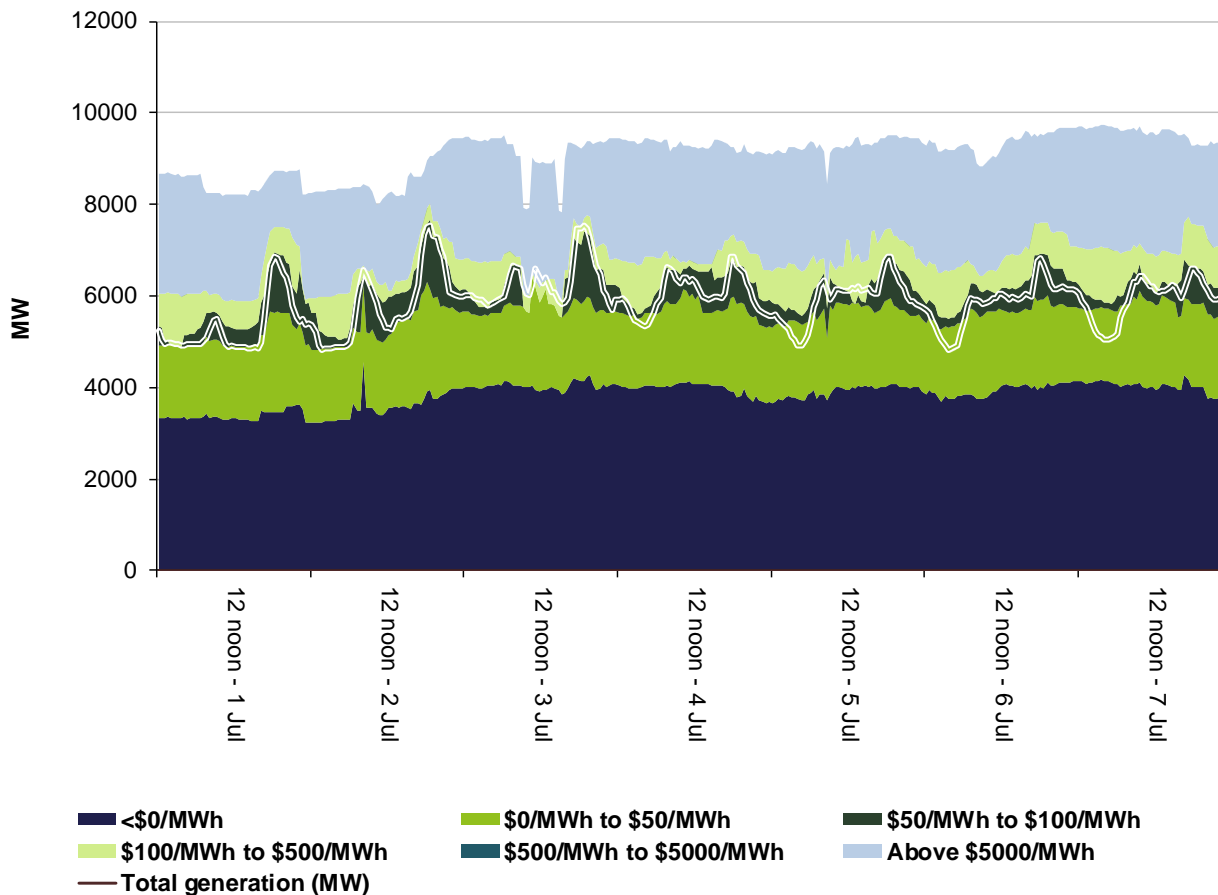
**Figure 3: Queensland generation and bidding patterns**



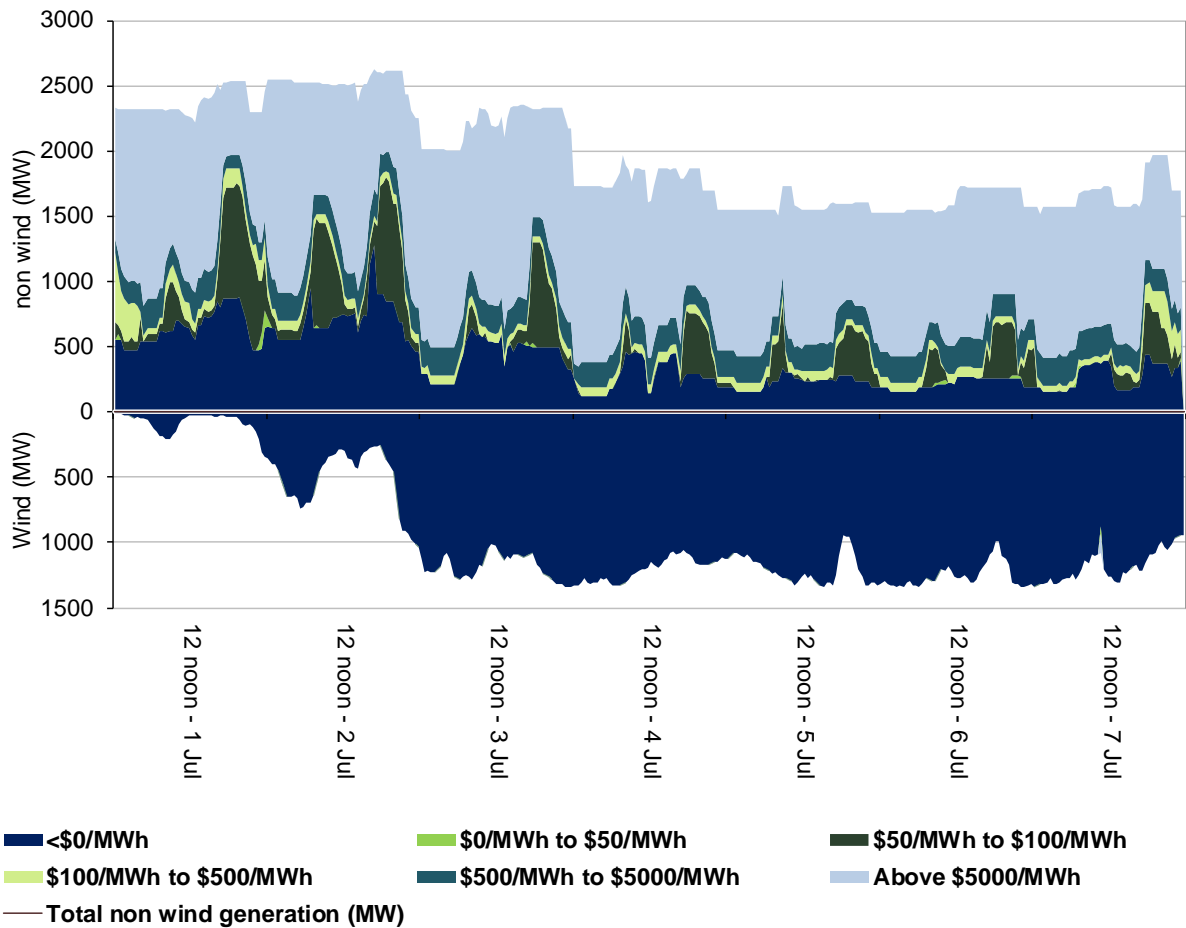
**Figure 4: New South Wales generation and bidding patterns**



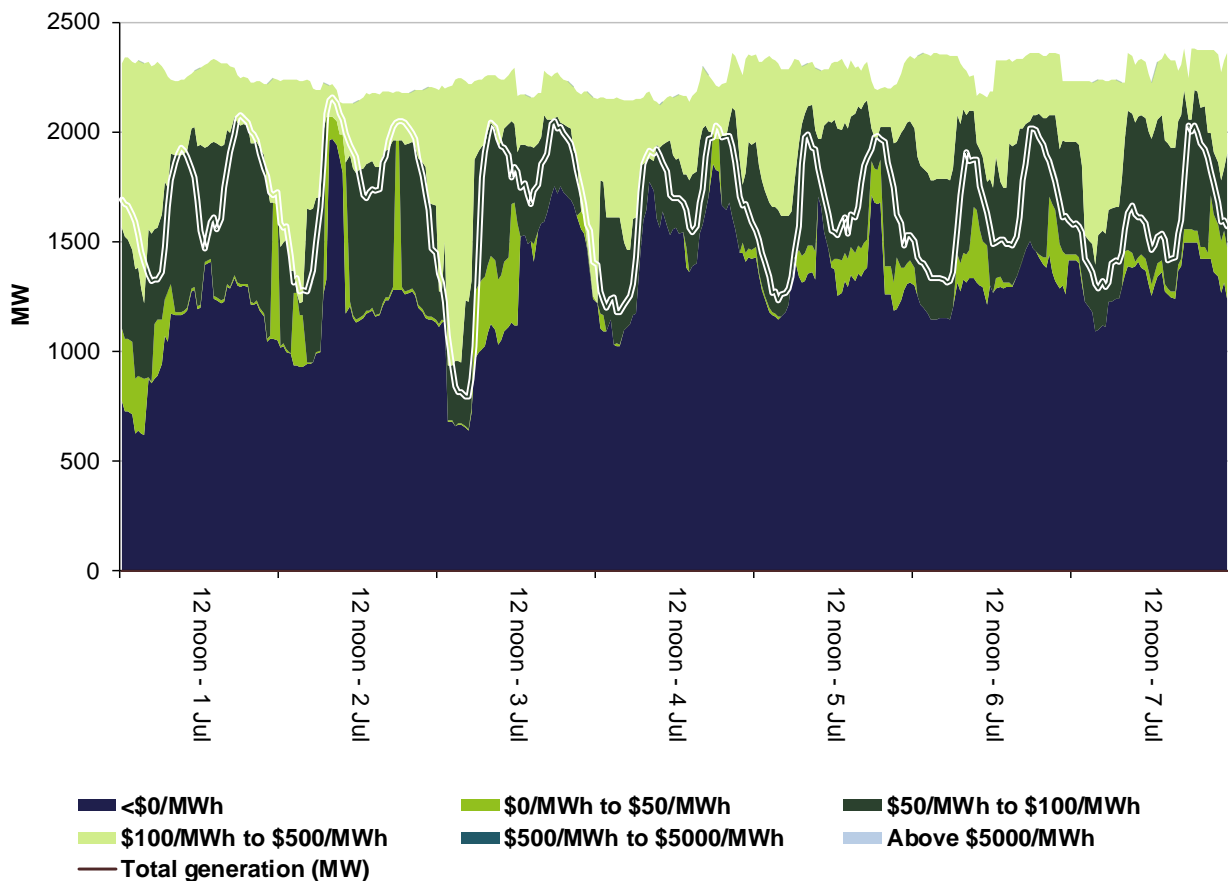
**Figure 5: Victoria generation and bidding patterns**



**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.

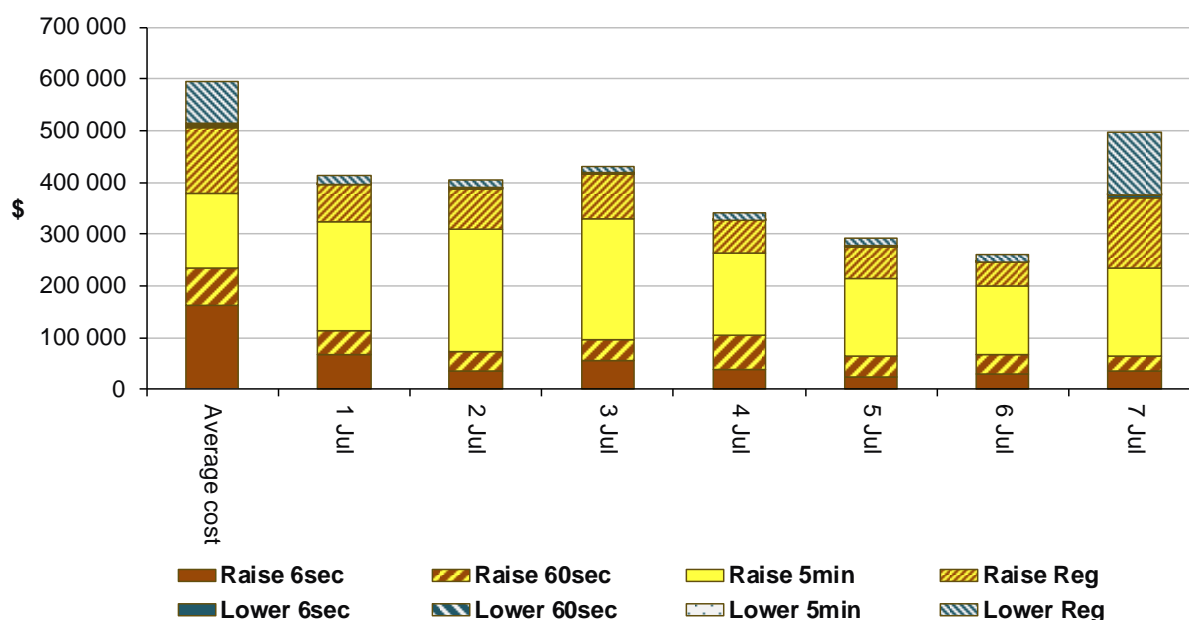
The Electricity Rules stipulate that generators pay for raise contingency services and customers pay for lower contingency services. Regulation services are paid for on a “causer pays” basis determined every four weeks by AEMO.

The total cost of FCAS on the mainland for the week was \$2 513 500 or around one per cent of energy turnover on the mainland.

The total cost of FCAS in Tasmania for the week was \$127 000 or around one 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 one occasion where the spot price in South Australia was greater than three times the South Australia weekly average price of \$68/MWh and above \$250/MWh.

### Wednesday, 4 July

**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
12.30 am	261.94	53.83	40.63	1423	1394	1399	3059	3043	3205

At times, AEMO may need to override the normal dispatch process to maintain system security. On this day AEMO directed gas plant in South Australia triggering an intervention event. Special pricing arrangements apply in all regions following an intervention in the market.

Conditions at the time saw demand and availability close to forecast.

At 12.10 am a constraint managing system strength in South Australia, which limits wind generation to less than 1295 MW, bound. This limited generation at a large number of wind farms in the region at their ramp down rates and therefore could not set price. With the cheaper priced generation ramp limited, the price increased to \$1375/MWh.

### Saturday, 7 July

**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	-123.75	-130.18	-130.41	1234	1063	1021	2786	2743	2814

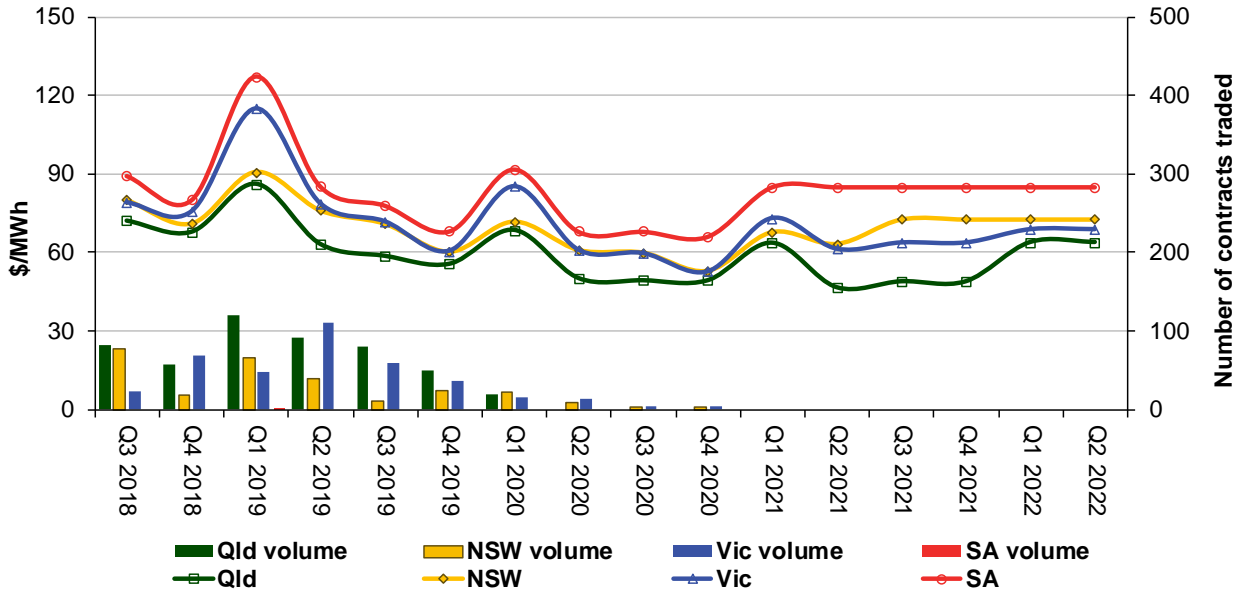
At times, AEMO may need to override the normal dispatch process to maintain system security. On this day AEMO directed gas plant in South Australia triggering an intervention event. Special pricing arrangements apply in all regions following an intervention in the market.

The price was close to that forecast four hours prior.

## 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. Of note is the lack of trades in the later years. Anecdotally, most participants don't trade beyond two and one half years and hence the prices shown here for those periods are unreliable as they may be the average of the buy and sell prices or, if there have been no offers for that period, the last valid offer.

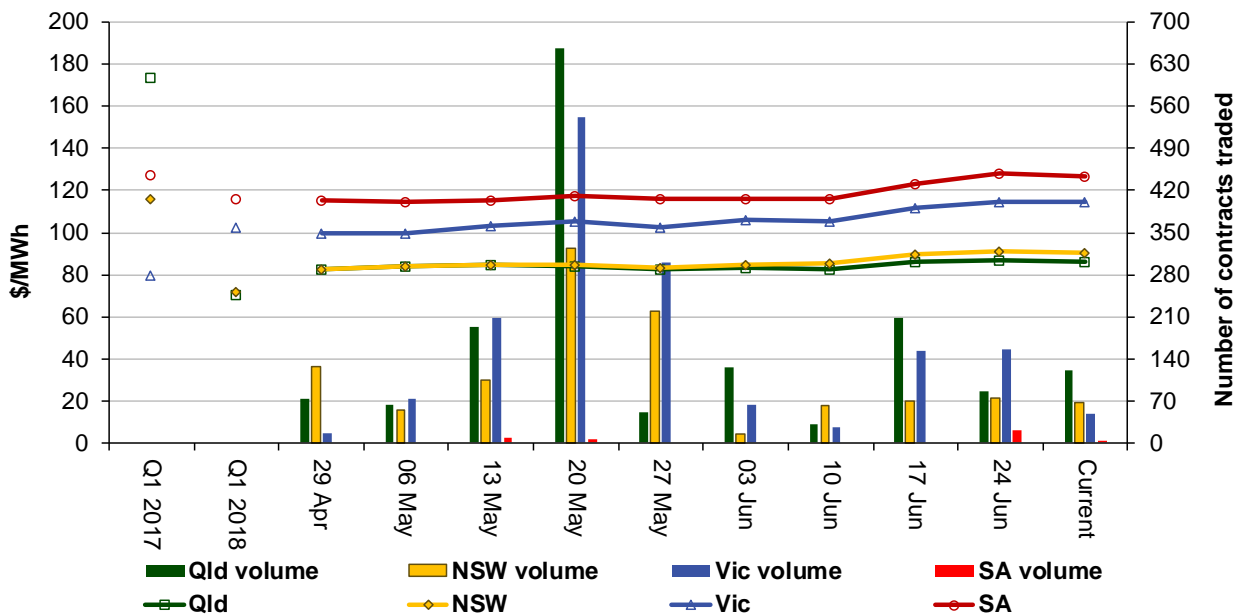
**Figure 9: Quarterly base future prices Q3 2018 – Q2 2022**



Source: ASXEnergy.com.au

Figure 10 shows how the price for each regional Q1 2019 base contract has changed over the last 10 weeks (as well as the total number of trades each week). The closing quarter 1 2017 and quarter 1 2018 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 2019 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.

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 2019 cap contract has changed over the last 10 weeks (as well as the total number of trades each week). The closing quarter 1 2017 and quarter 1 2018 prices are also shown.

**Figure 11: Price of Q1 2019 cap contracts over the past 10 weeks (and the past 2 years)**

