

# Electricity Report

4 to 10 May 2014



AUSTRALIAN ENERGY  
REGULATOR

## 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 to 10 May 2014. The Queensland price spike on 5 May reached \$1783/MWh.

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

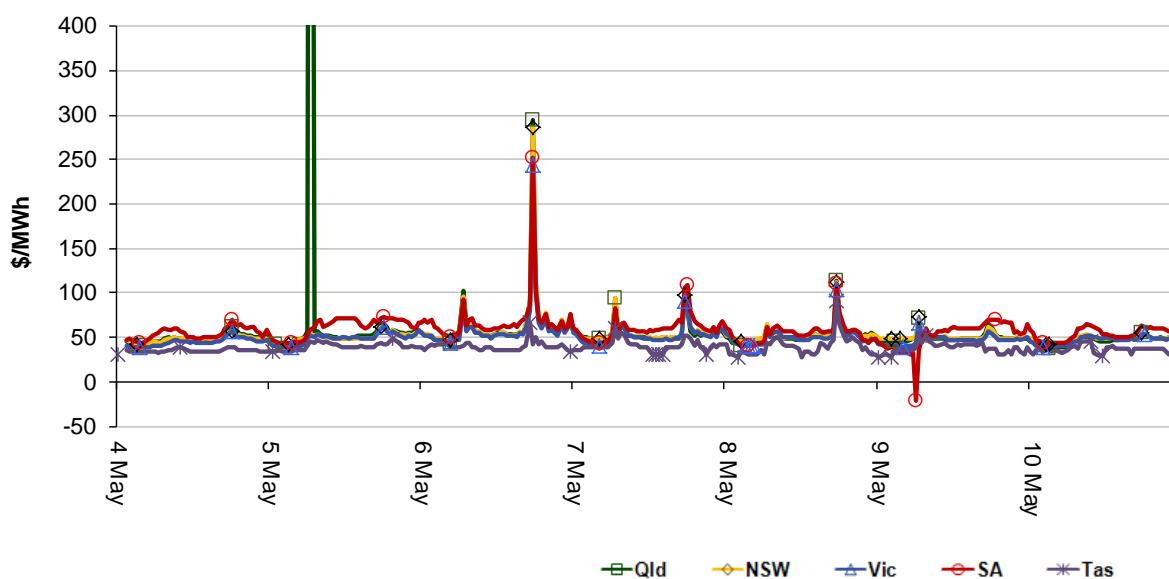
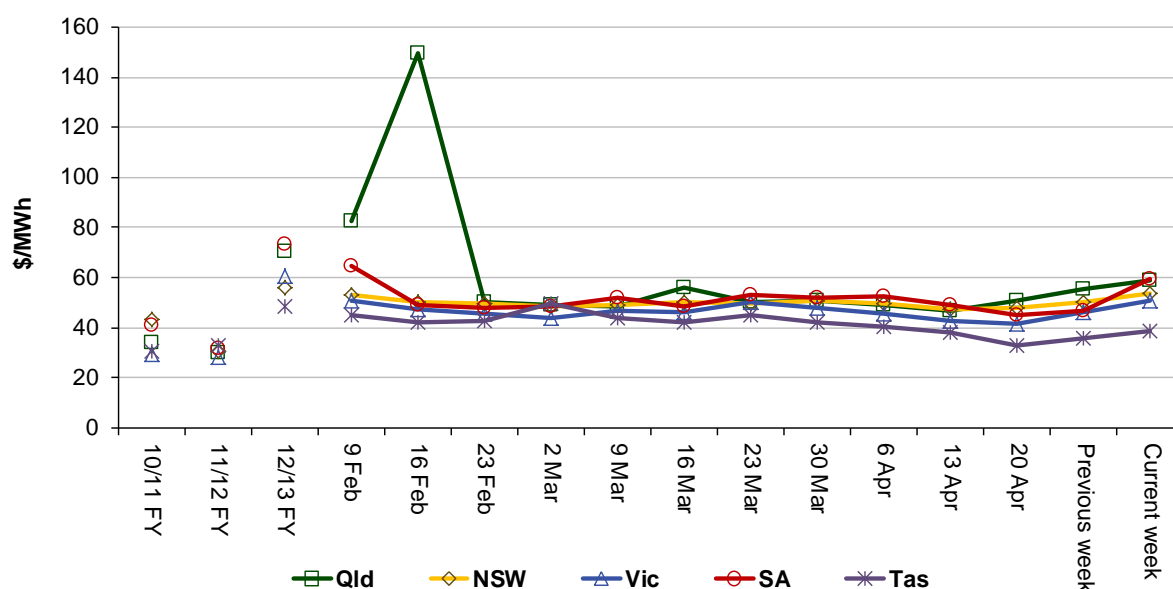


Figure 2 shows the volume weighted average (VWA) prices for the current week (with prices shown in Table 1) and the preceding 12 weeks, as well as the VWA price over the previous 3 financial years.

**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	59	54	51	59	39
12-13 financial YTD	70	56	61	73	49
13-14 financial YTD	62	53	55	70	42

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 24 trading intervals throughout the week where actual prices varied significantly from forecasts. This compares to the weekly average in 2013 of 97 counts and the average in 2012 of 60. 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**

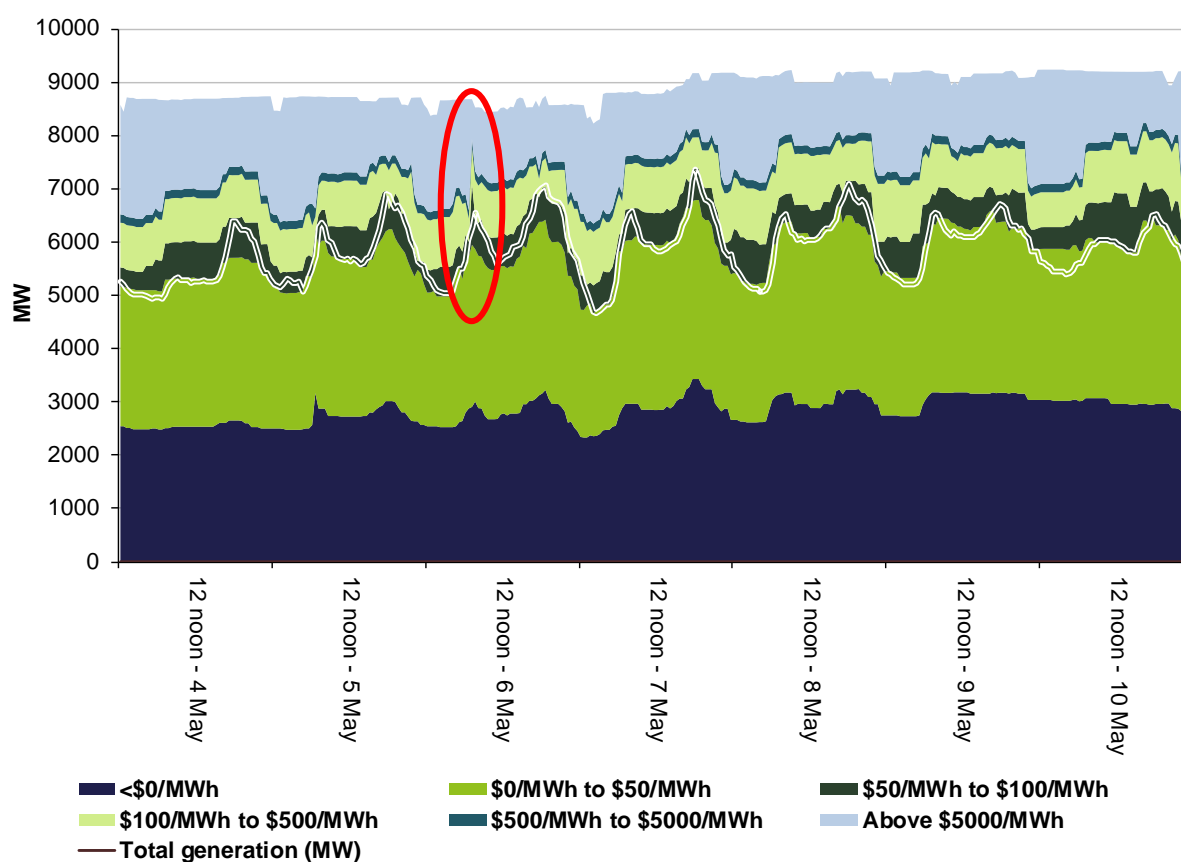
	Availability	Demand	Network	Combination
% of total above forecast	1	41	0	0
% of total below forecast	10	16	0	32

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

## Generation and bidding patterns

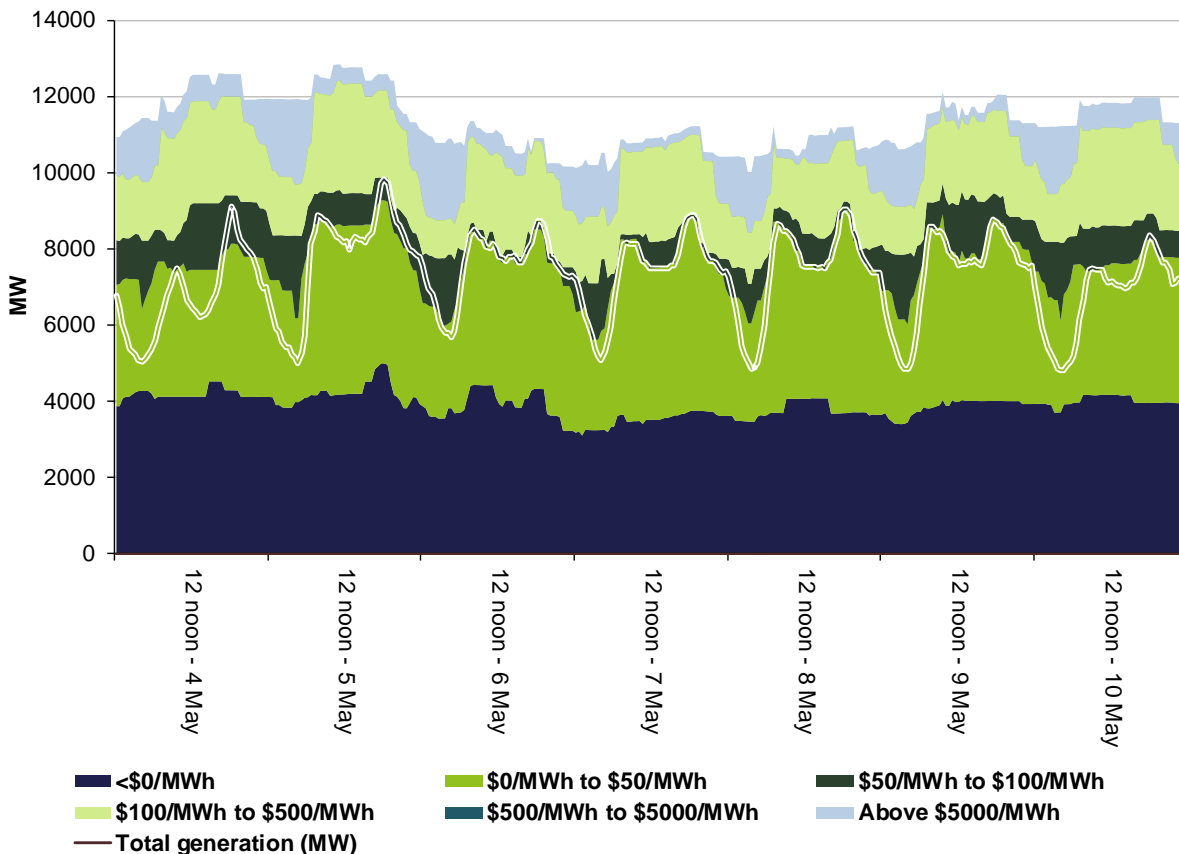
The AER reviews generator bidding as part of its market monitoring to better understand the drivers behind price variations. Figures 3 to 7 show, the total generation dispatched and the amounts of capacity offered within certain price bands for each 30 minute trading interval in each region.

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

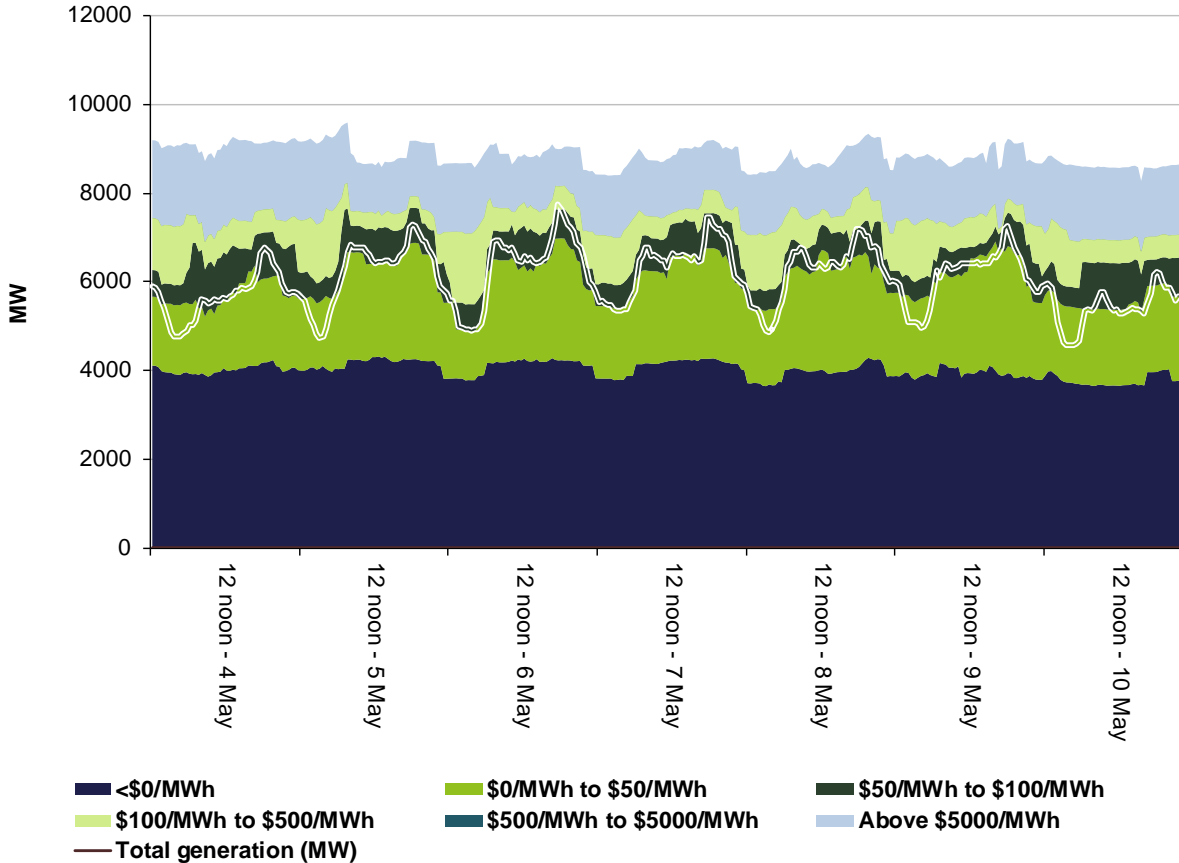


See the “Detailed market analysis of significant price events” section for details of significant rebidding circled in red above.

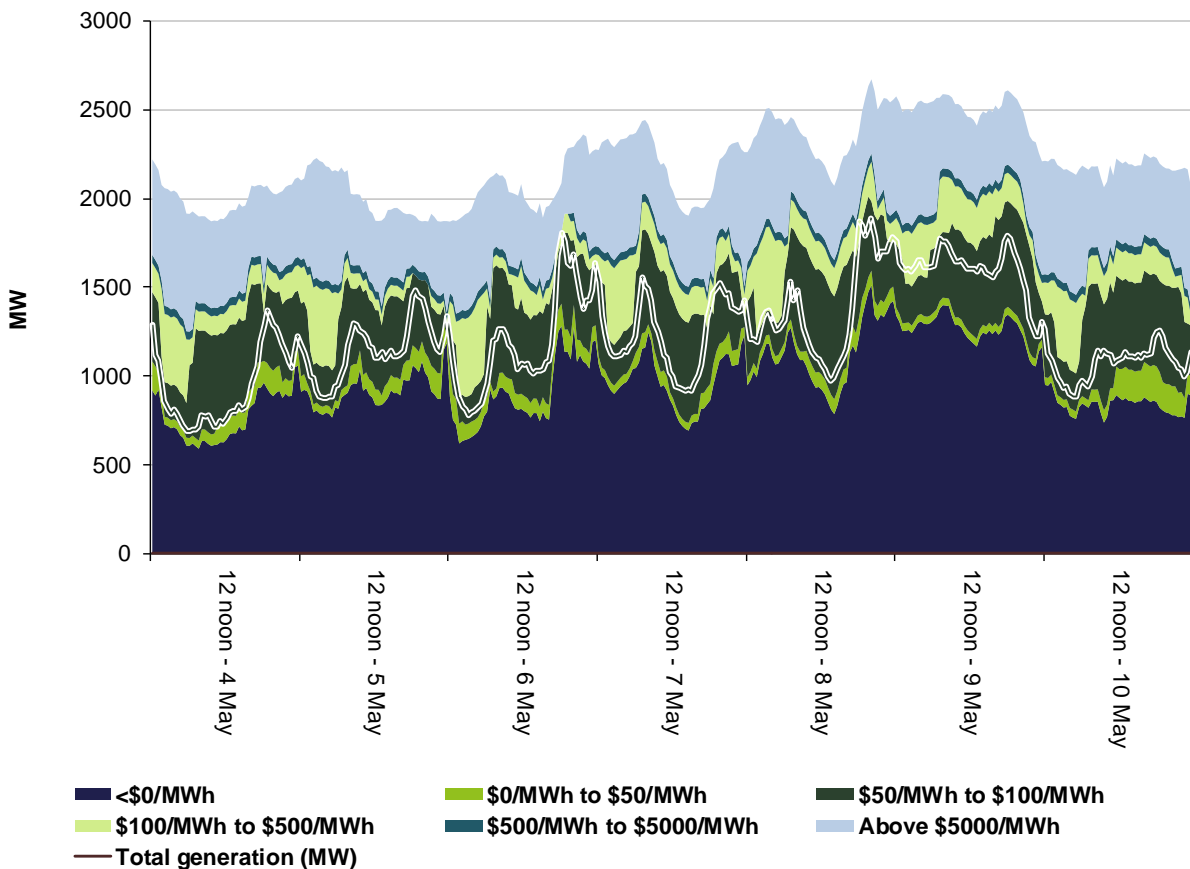
**Figure 4: New South Wales generation and bidding patterns**



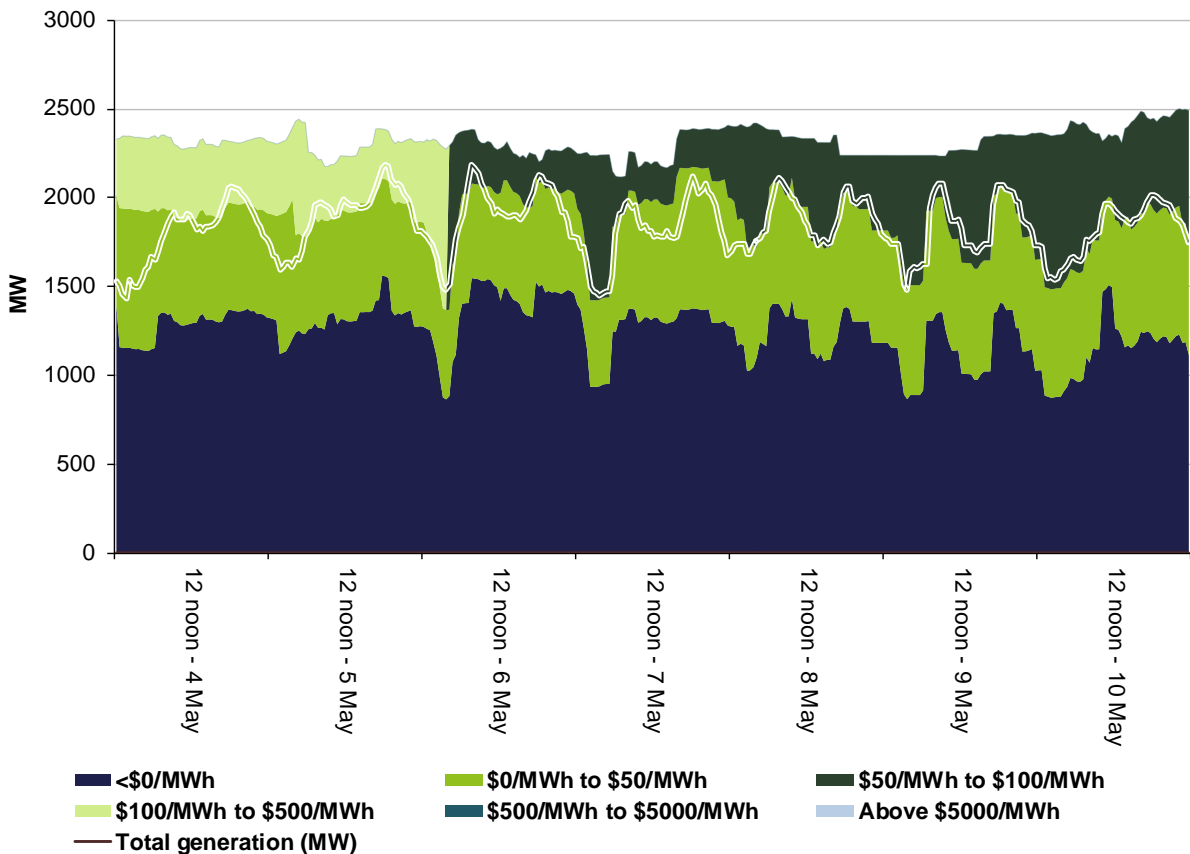
**Figure 5: Victoria generation and bidding patterns**



**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 \$1 214 000 or less than 1 per cent of energy turnover on the mainland. There were high FCAS prices on the final five days of the week. Most of these prices related to raise services, however on 9 May the high prices were in response to increased demand for lower services.

During periods of peak demand generators which normally provide FCAS services were operating at close to full capacity in energy. This means their ability to provide raise services was reduced. Therefore, when raise services were required at times of peak demand, often the only generators who were able to provide raise services were offering the services at higher prices (around \$100/MW).

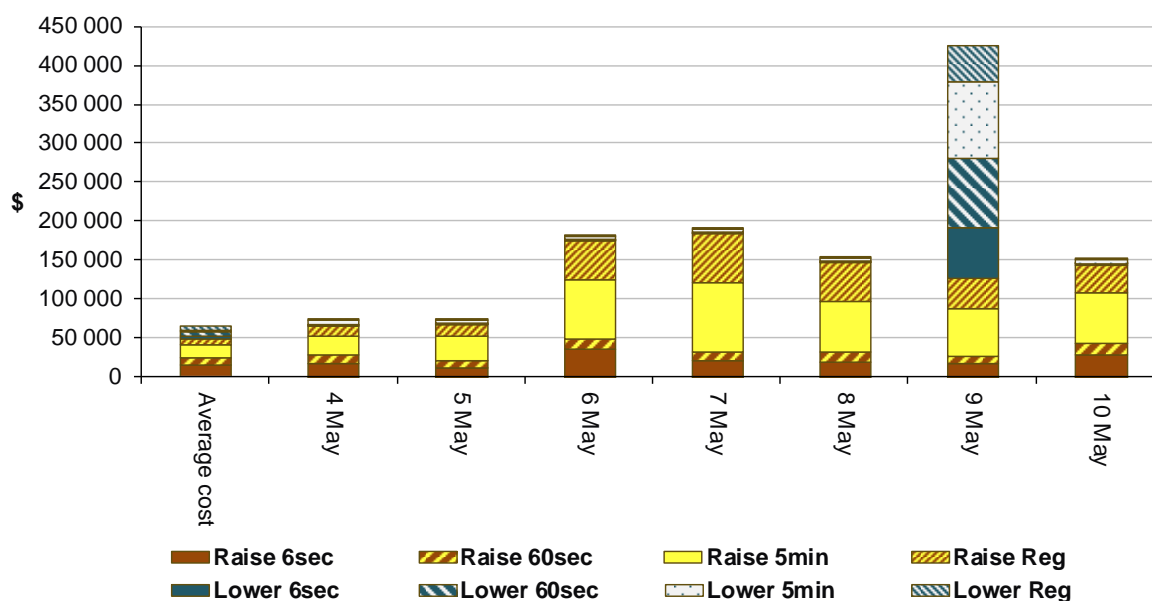
On 9 May, the Heywood M1 500/275 kV transformer in Victoria was on a scheduled outage from 6 am to 6 pm. At 6.47 am, as the M1 transformer was being removed from service, the Heywood-Tarrone-APD and the Tarrone-Moorabool No.1 1 500kV lines tripped. At 7 am a number of constraints were invoked to manage these outages which violated and resulted in flows being forced into Victoria from South Australia at around 356 MW. This increased the requirements for all local lower services in South Australia and high priced services were enabled until 7.15 am.

AEMO are further investigating the cause of this incident.

The total cost of FCAS in Tasmania for the week was \$40 000 or less than 1 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

We provide more detailed analysis of events where the spot price was greater than three times the weekly average price in a region and above \$250/MWh or was below -\$100/MWh.

### Queensland

There were two occasions where the spot price in Queensland was greater than three times the Queensland weekly average price of \$59/MWh and above \$250/MWh.

**Table 3: Queensland, Monday 5 May**

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
<b>7.00 AM</b>	1783	56.89	57.70	5 900	5 811	5 902	8 730	8 720	8 820

Both demand and available generation were close to forecast.

At 6.36 am, effective from 6.45 am, CS Energy rebid a total of 125 MW of available capacity at Gladstone power station from prices below \$60/MWh to the price cap. The reason given was “0636A interconnector constraint-QNI binding north-SL”. This caused the 5 minute price to increase from \$85/MWh at 6.40 am to \$10 250/MWh at 6.45 am.

There was no other significant rebidding.

### Mainland

At 6 pm on Tuesday 6 May, the spot price in Queensland, New South Wales, Victoria, and South Australia was around \$250/MWh.

**Table 4: Mainland, Tuesday 6 May**

Time	Price (\$/MWh) <sup>1</sup>			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
<b>6.00 PM</b>	286.02	141.98	136.47	25 282	24 930	24 977	30 569	30 749	31 443

Both demand and available generation were close to forecast. All of the mainland regions were aligned for the trading interval. There were tight supply conditions on the mainland at the time, which were contributed to by the following factors:

- Basslink was exporting generation into Victoria at its maximum capacity (just under 600 MW). This meant it was unable to increase supply to the mainland when required.
- Wind generation was low.
- A number of generators across the mainland were either stranded or trapped in FCAS, or ramp rate up constrained.

This meant that small changes in demand, availability or generator rebidding could lead to large changes in price.

At 5.40 pm, demand in New South Wales increased by 159 MW. This coincided with the 5 minute price increasing from \$153/MWh at 5.35 pm to \$296.45/MWh at 5.40 pm.

Demand on the mainland increased a further 262 MW in the remainder of the trading interval. At 5.45 pm, effective from 5.55 pm, CS Energy rebid a total of 250 MW of available capacity at Gladstone power station from prices below \$60/MW to the price cap. The reason given was “1744A dispatch price higher than 30MIN forecast-SL”. These factors contributed to prices being maintained at around \$250–300/MWh for the rest of the trading interval.

There was no other significant rebidding.

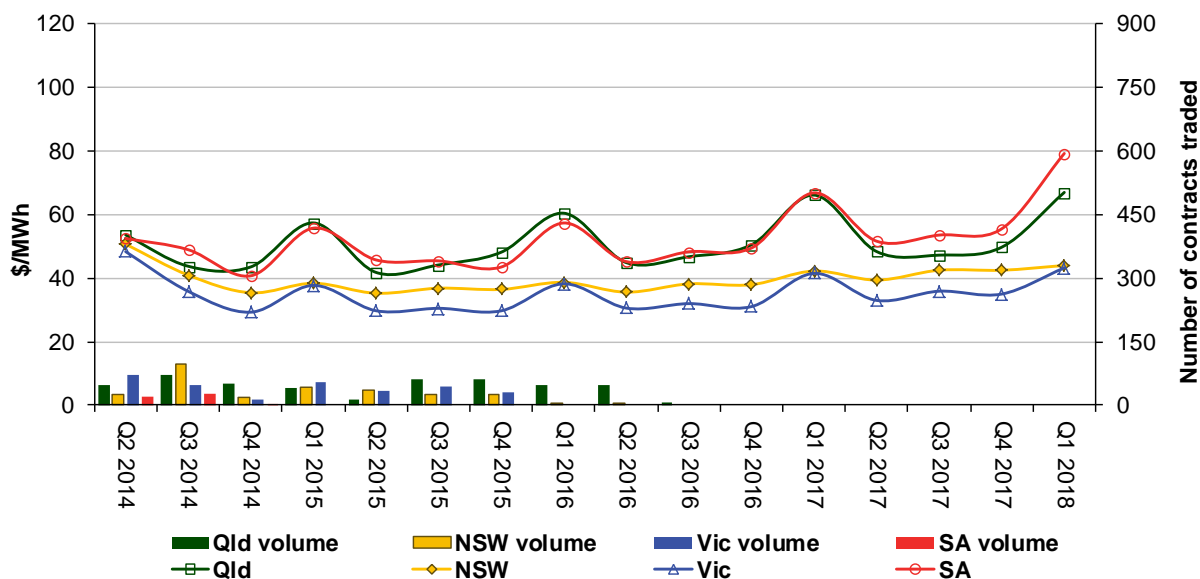
## Financial markets

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.

<sup>1</sup> The prices listed are for New South Wales. The prices in Queensland, Victoria, and Adelaide were similar.



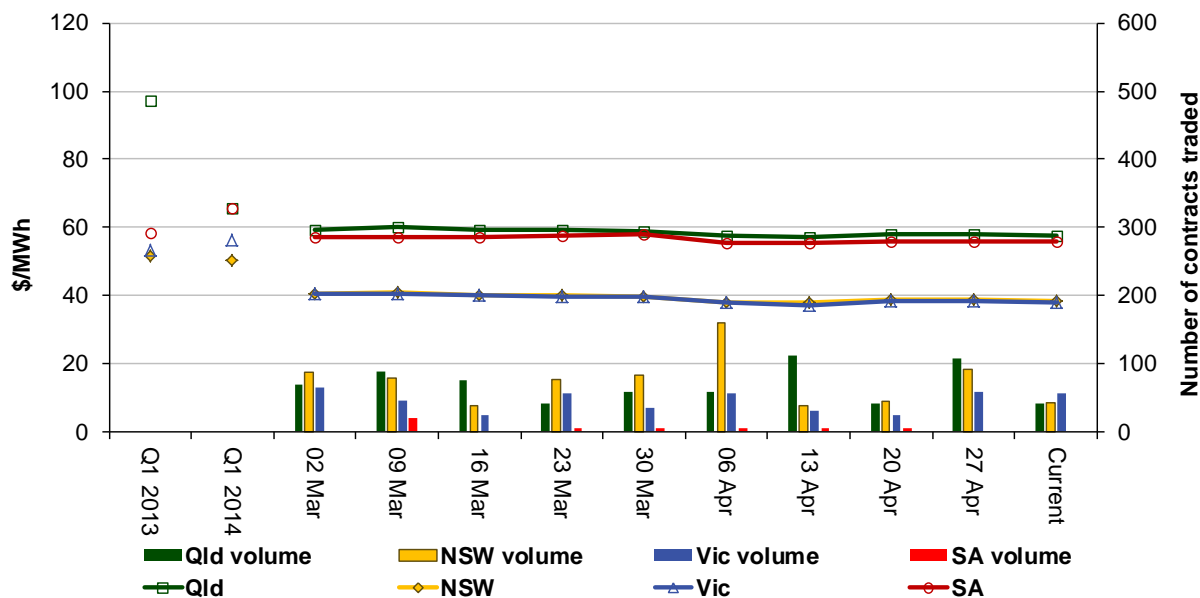
**Figure 9: Quarterly base future prices Q2 2014 – Q1 2018**



Source: [ASXEnergy.com.au](http://ASXEnergy.com.au)

Figure 10 shows how the price for each regional Quarter 1 2015 base contract has changed over the last 10 weeks (as well as the total number of trades each week). The closing quarter 1 2013 and quarter 1 2014 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 2015 base contracts over the past 10 weeks (and the past 2 years)**



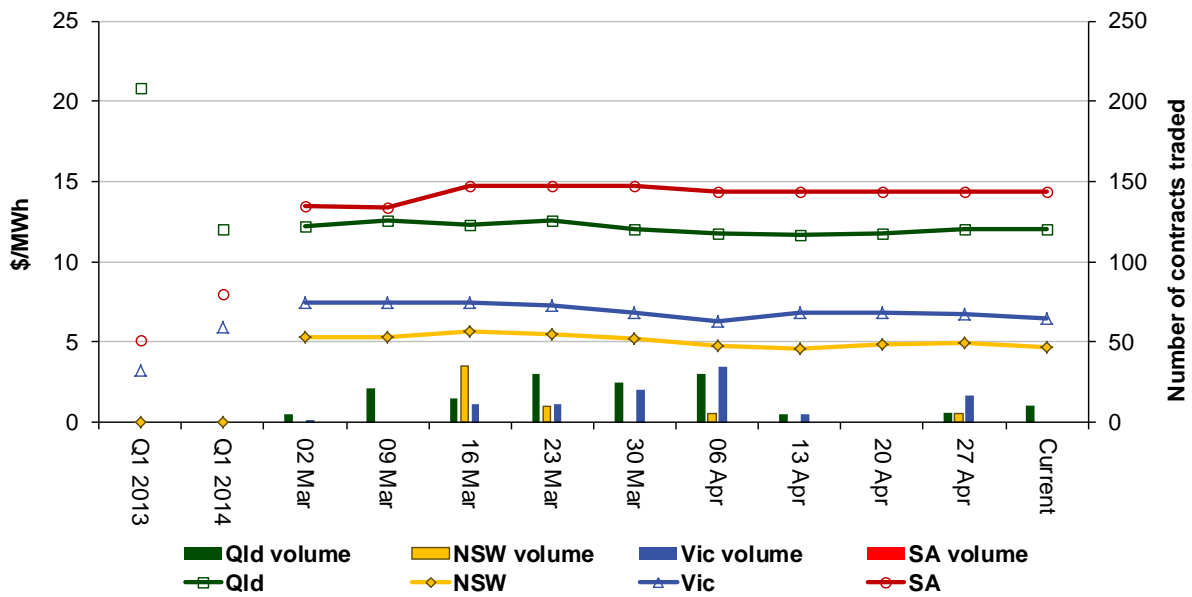
Note: Base contract prices are shown for each of the current week and the previous 9 weeks, with average prices shown for yearly periods 1 and 2 years prior to the current year

Source: [ASXEnergy.com.au](http://ASXEnergy.com.au)

Prices of other financial products (including longer-term price trends) are available in the [Performance of the Energy Sector](#) section of our website.

Figure 11 shows how the price for each regional Quarter 1 2015 cap contract has changed over the last 10 weeks (as well as the total number of trades each week). The closing quarter 1 2013 and quarter 1 2014 prices are also shown.

Figure 11: Price of Q1 2015 cap contracts over the past 10 weeks (and the past 2 years)



Source: [ASXEnergy.com.au](http://ASXEnergy.com.au)

Australian Energy Regulator

May 2014