

Electricity Report

13 to 19 July 2014



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 13 to 19 July 2014. The South Australian spot price reached \$1884/MWh and \$1588/MWh on 14 July and \$2108/MWh on 18 July.

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

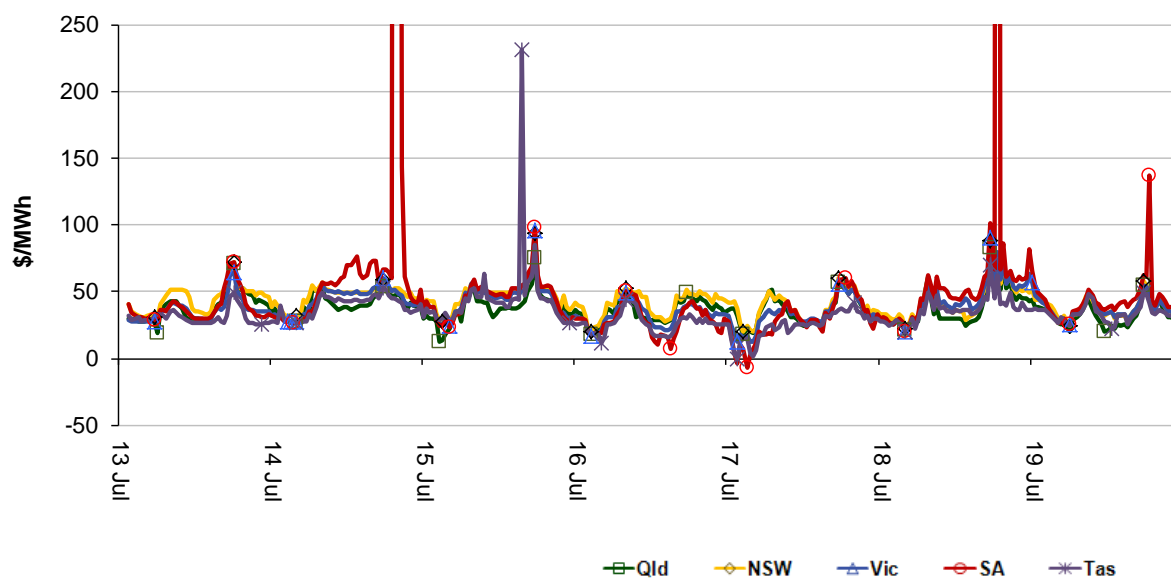


Figure 2 shows the volume weighted average (VWA) prices for the current week (with prices shown in Table 1) and the preceding 12 weeks, as well as the VWA price over the previous 3 financial years. Table 1 and Figure 2 also show that prices are down in all regions from the previous financial year and with the exception of South Australia are down from those in June 2014.

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

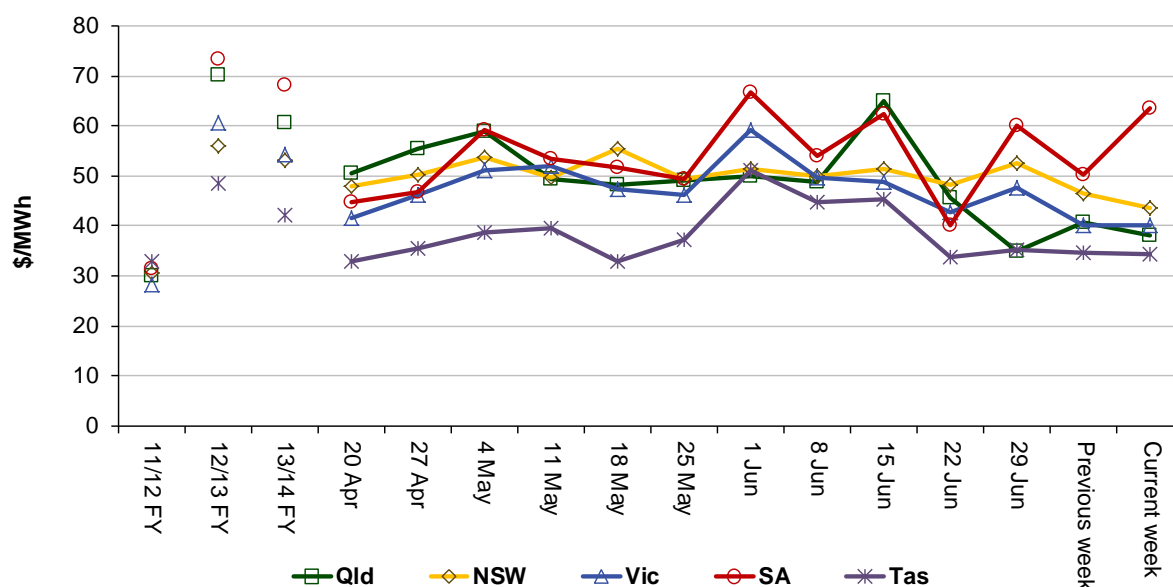


Table 1: Volume weighted average spot prices by region (\$/MWh)

Region	Qld	NSW	Vic	SA	Tas
Current week	38	44	40	64	34
13-14 financial YTD	60	58	59	70	53
14-15 financial YTD	37	47	42	58	35

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 56 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	9	29	0	1
% of total below forecast	36	24	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. 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

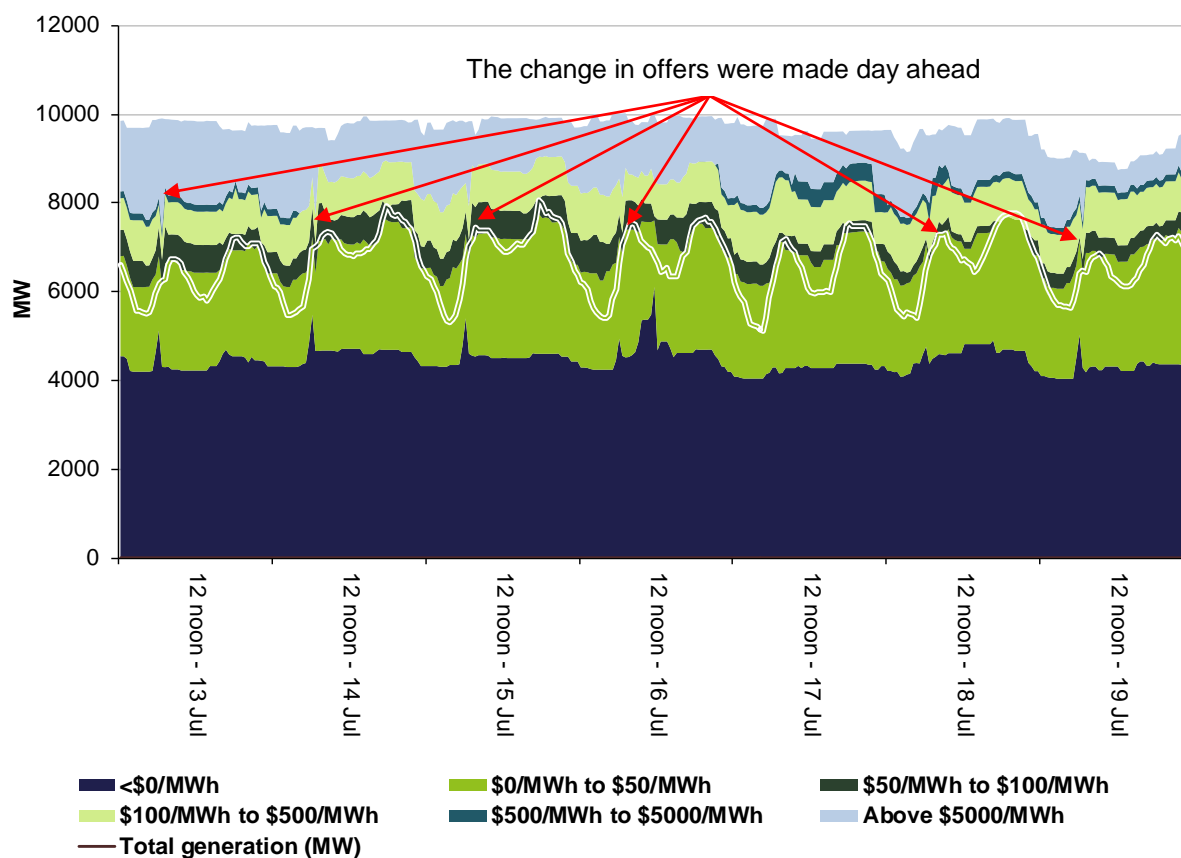


Figure 4: New South Wales generation and bidding patterns

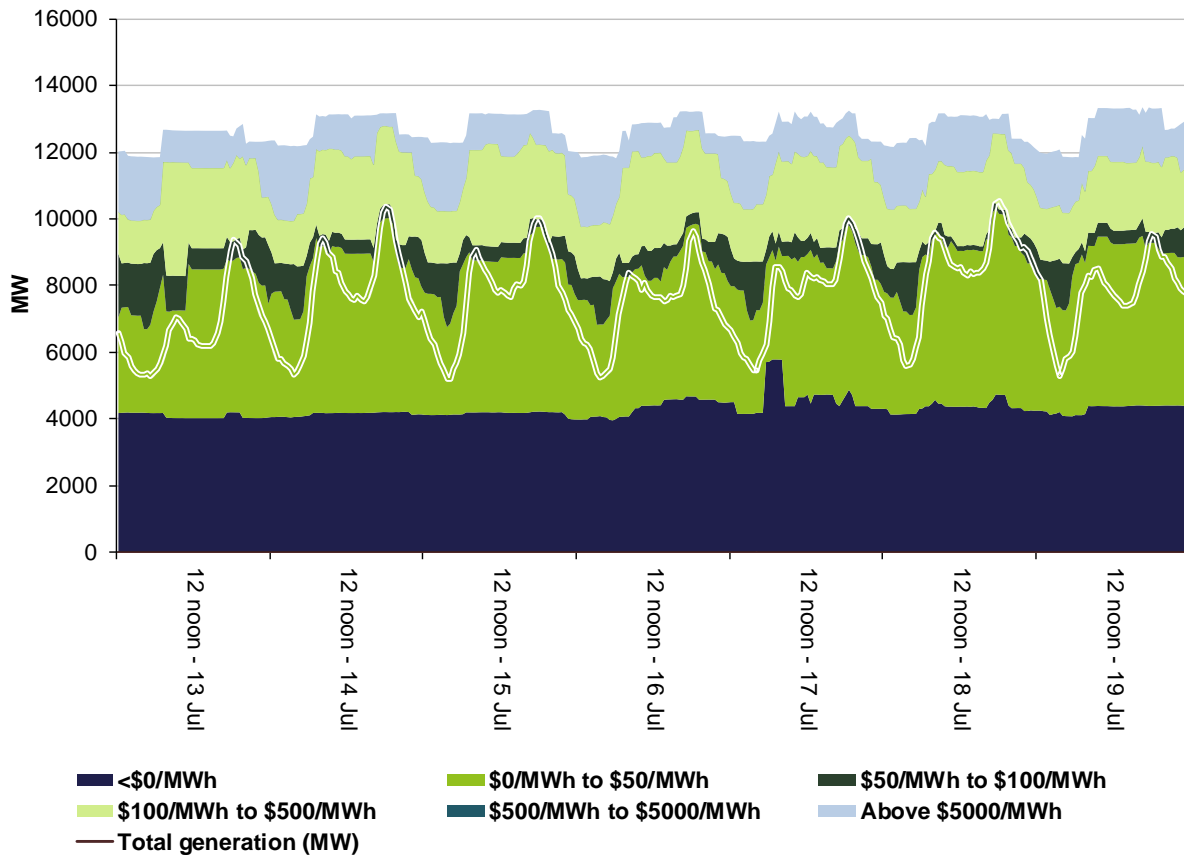
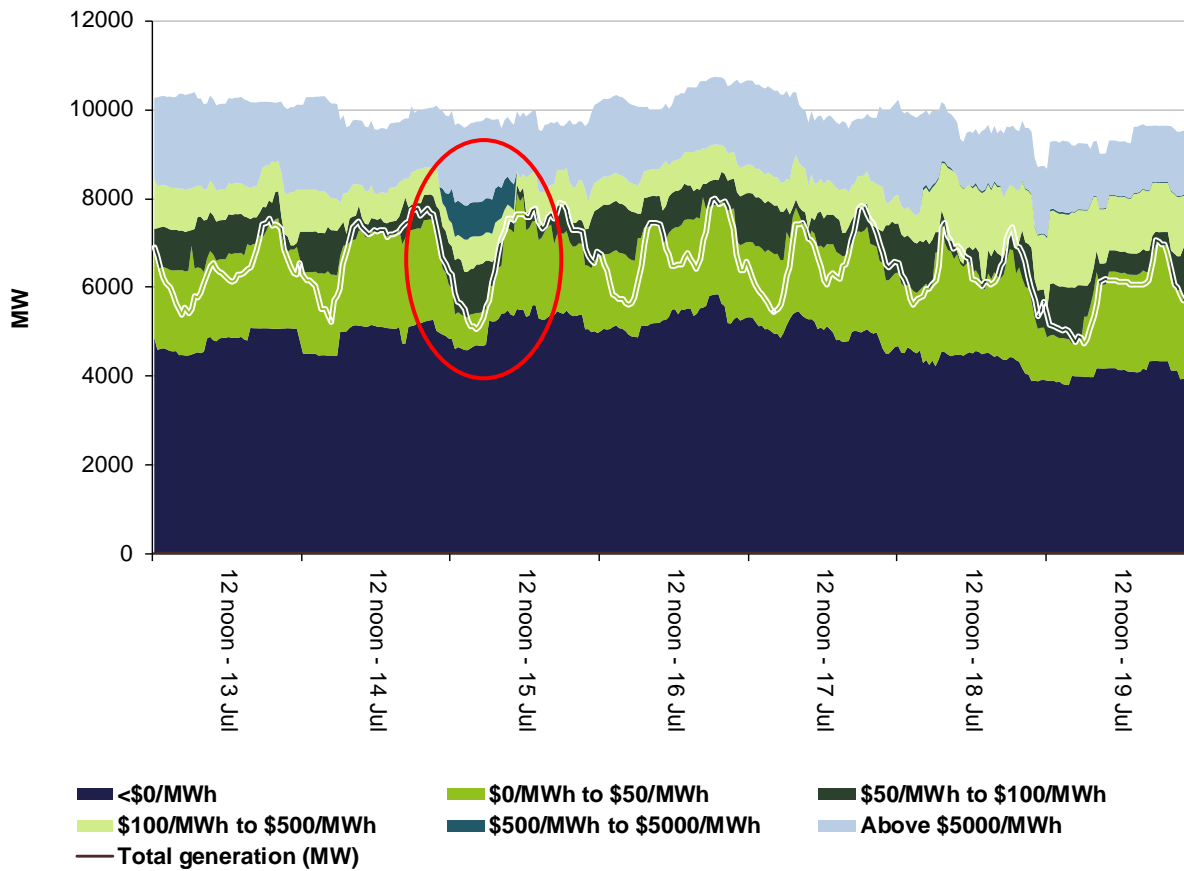


Figure 5: Victoria generation and bidding patterns



Red circle shows rebidding by AGL at Loy Yang A that shifted around 800 MW of capacity from prices below $\$30/\text{MWh}$ to above $\$580/\text{MWh}$ due to unexpected plant limitation.

Figure 6: South Australia generation and bidding patterns

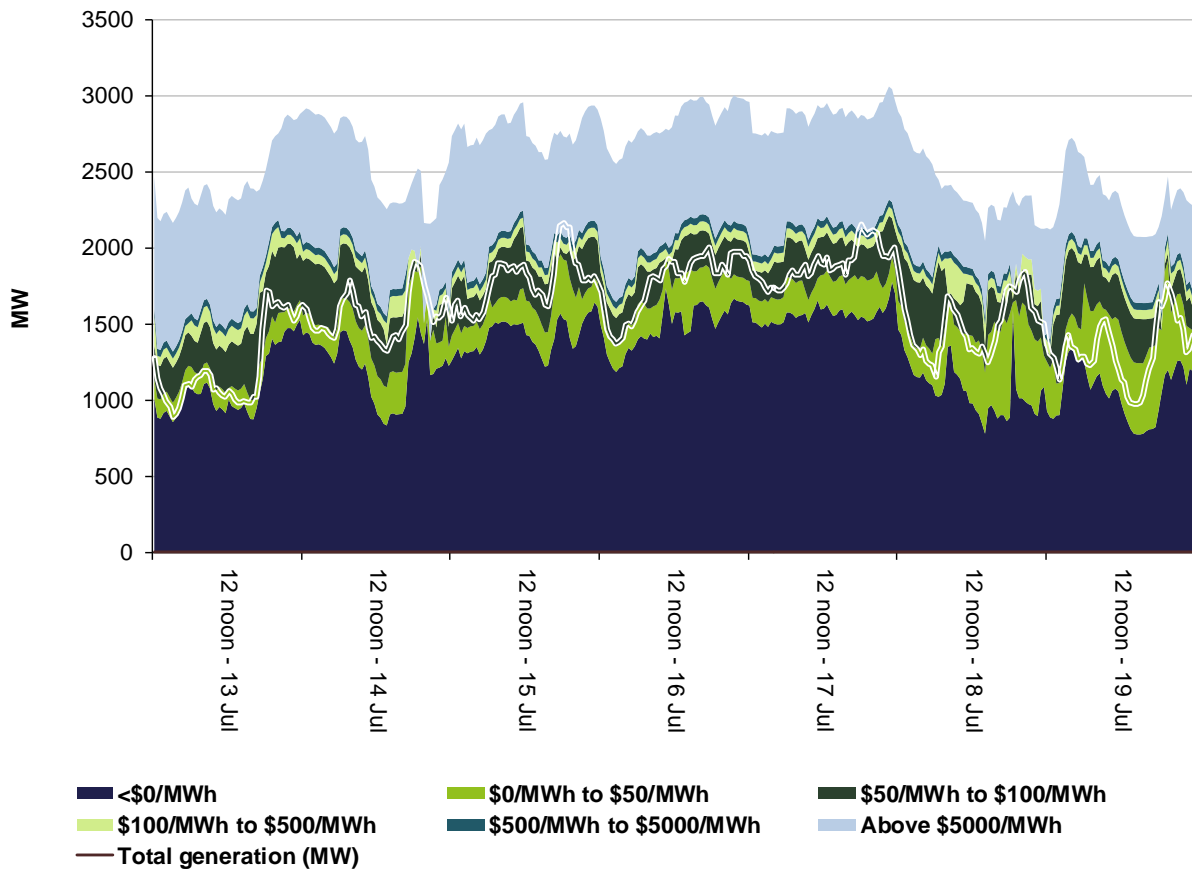
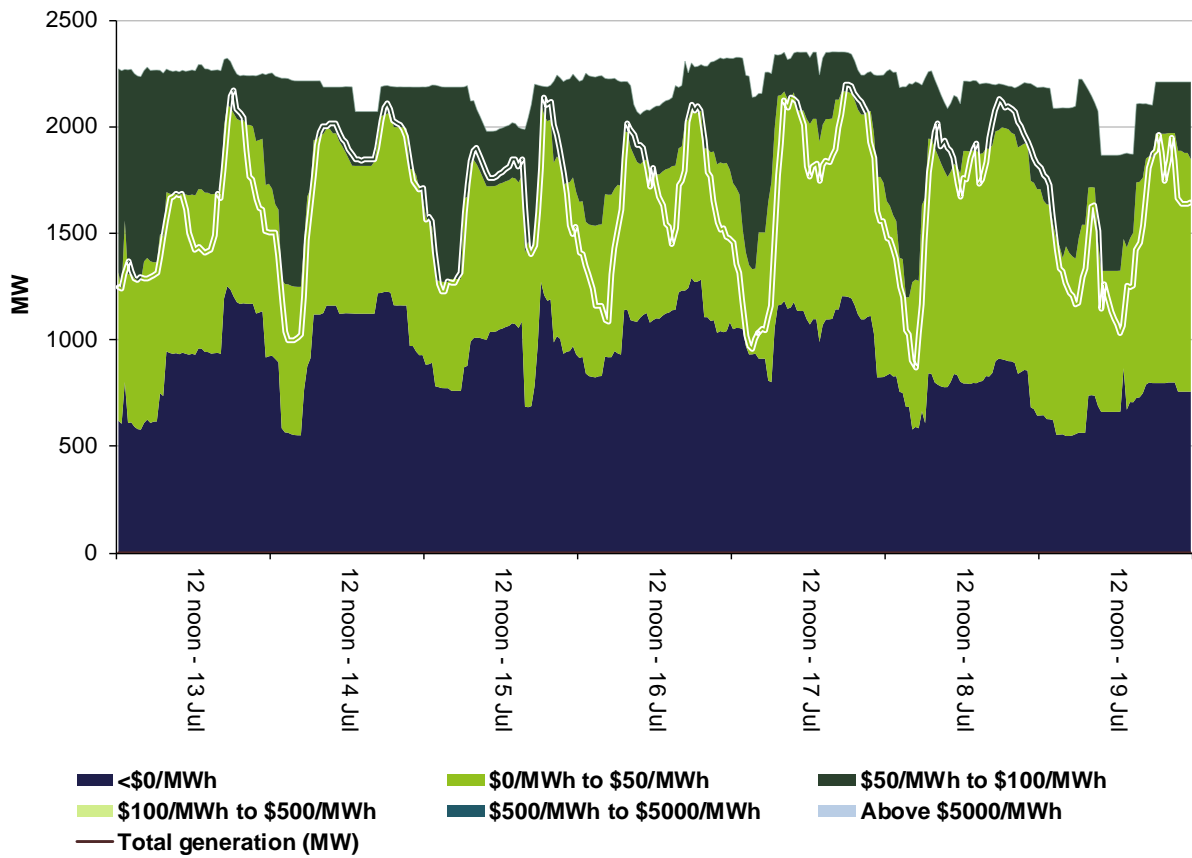


Figure 7: Tasmania generation and bidding patterns



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.

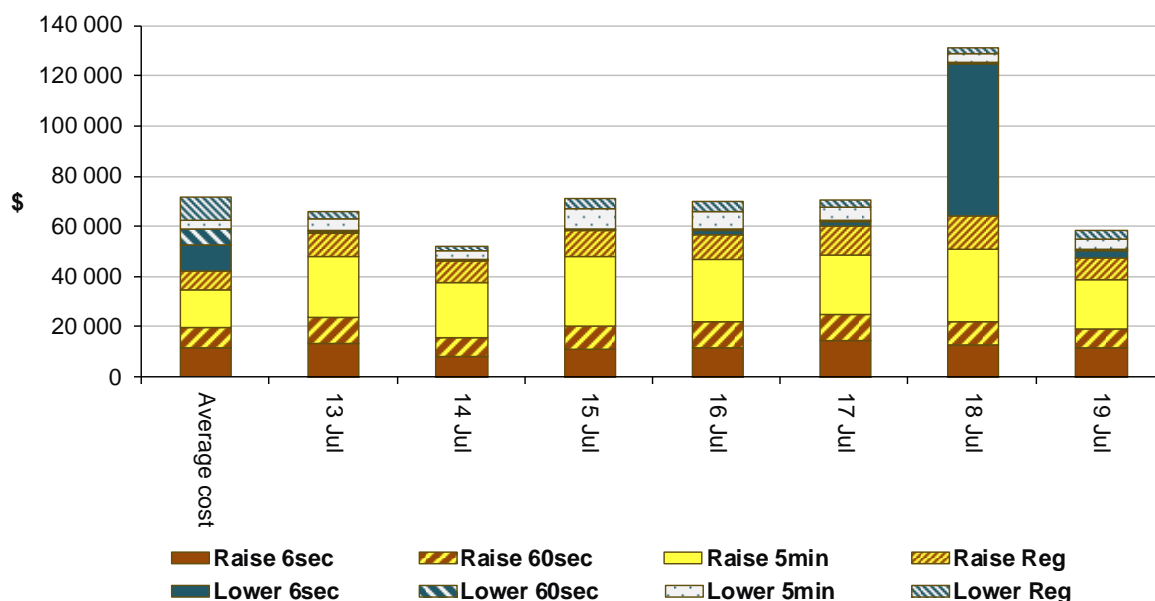
The Electricity Rules stipulate that generators pay for raise contingency services and customers pay for lower contingency services. Regulation services are paid for on a “causer pays” basis determined every four weeks by AEMO.

The total cost of FCAS on the mainland for the week was \$416 000 or less than 1 per cent of energy turnover on the mainland.

The total cost of FCAS in Tasmania for the week was \$102 000 or around 1.5 per cent of energy turnover in Tasmania. A majority of this cost, \$60 000, was accrued on 18 July in lower 6 second services. On 18 July at 2.55 am a constraint used to set the local requirement for lower 6 second services in Tasmania violated after Basslink entered the no-go zone. The requirement for lower 6 second services increased from zero at 2.50 am to 188 MW at 2.55 am. The co-optimisation between energy and FCAS markets resulted in the price reaching \$3502/MW at 2.55 am.

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.

There were three occasions where the spot price in South Australia was greater than three times the South Australia weekly average price of \$64/MWh and above \$250/MWh.

Table 3: South Australia, Monday 14 July

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
8.00 PM	1884.35	300.07	80.76	2138	2368	2207	2352	2460	2534
8.30 PM	1587.98	70.50	75.76	2067	2295	2116	2152	2508	2558

Conditions at the time saw demand and available capacity lower than that forecast.

At 7.45 pm a system normal constraint used to avoid the overload of the Heywood M2 transformer bound when flows on the transformer increased. This resulted in imports in to South Australia being reduced from 452 MW at 7.40 pm to 250 MW at 7.45 pm across the Heywood interconnector. With generation in South Australia ramp up limited the five minute price reached \$11 003/MWh at 7.45 pm. At 7.50 pm the Heywood interconnector returned to previous levels and the five minute price fell to \$62/MWh.

At around 7.40 pm (effective in dispatch at 7.50 pm) AGL's Torrens Island units B3 and B4 tripped reducing available capacity by a total of 400 MW, all of which was priced at the market floor.

At 8.07 pm, effective from 8.15 pm, Alinta Energy rebid a total of 228 MW of available capacity at Northern Power Station from prices below \$60/MWh to above \$8700/MWh. The reason given was "2005A constraint management - V^SML_NSWRB_2@20:07". As a result the five minute price at 8.15 pm reached \$8900/MWh set by Northern unit 1.

At 8.20 pm there was a 139 MW decrease in demand (mainly due to Anagston and Pt Stanvac increasing their output) which saw the five minute price return to previous levels.

Table 4: South Australia, Friday 18 July

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
7.00 PM	2107.93	66.18	63.00	2171	2323	2176	2356	2453	2529

Conditions at the time saw demand and available capacity lower than that forecast. Wind generation at the time was around 80 MW.

At 6.38 pm, effective from 6.45 pm, Alinta Energy rebid a total of 150 MW of available capacity at Northern Power Station from prices below \$70/MWh to above \$12 500/MWh. The reason given was "1835A \$110.34 V 5PD \$64.14@18:38".

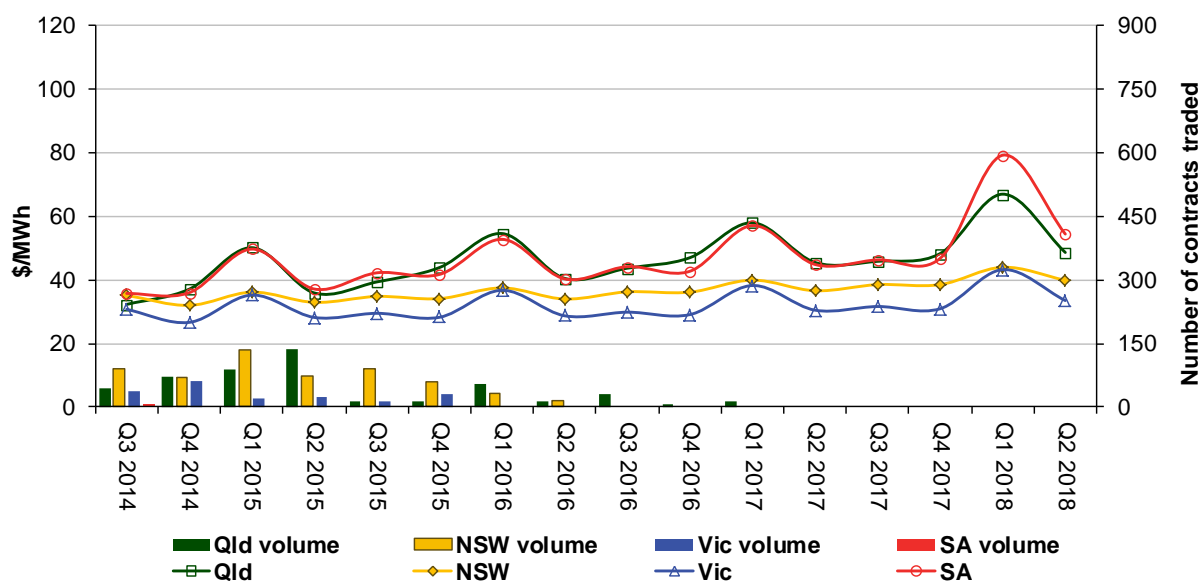
At 6.43 pm, effective from 6.50 pm, Origin Energy rebid a total of 145 MW of available capacity across its Ladbroke and Quarantine power stations from prices below \$50/MWh to above \$12 000/MWh. The reason given was “1841A constraint management - V>S_460 SL”. As a result the five minute price at 6.50 pm reached \$12 1950/MWh set by Quarantine.

At 8.25 pm there was a 132 MW decrease in demand (mainly due to Anagston and Pt Stanvac increasing their output) which saw the five minute price return to previous levels.

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.

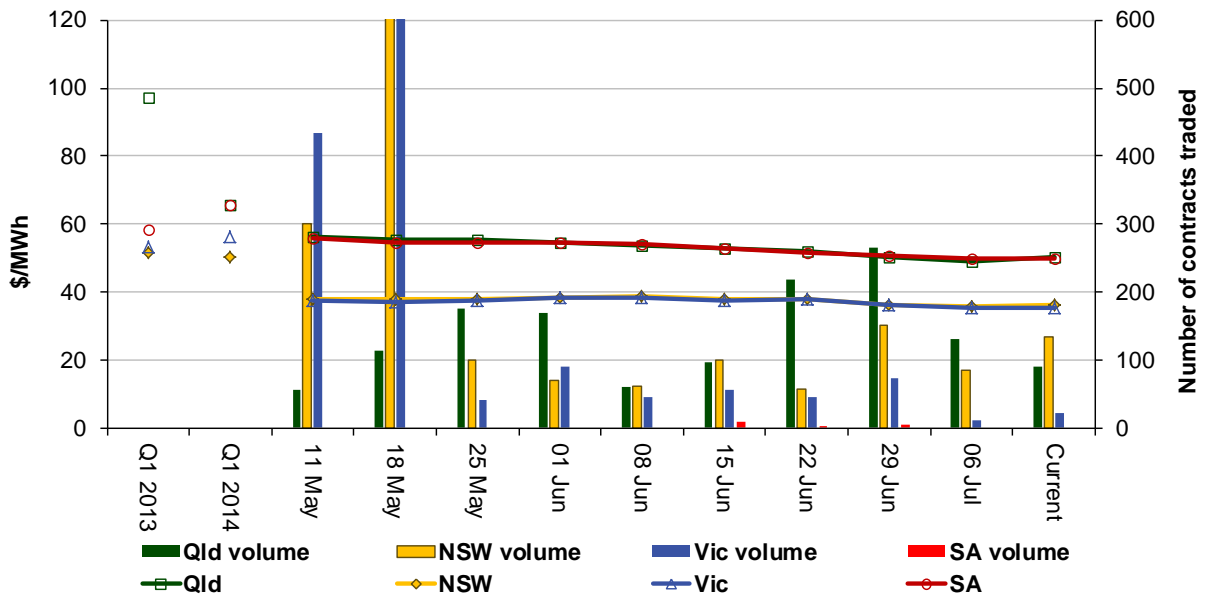
Figure 9: Quarterly base future prices Q3 2014 – Q2 2018



Source: 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)



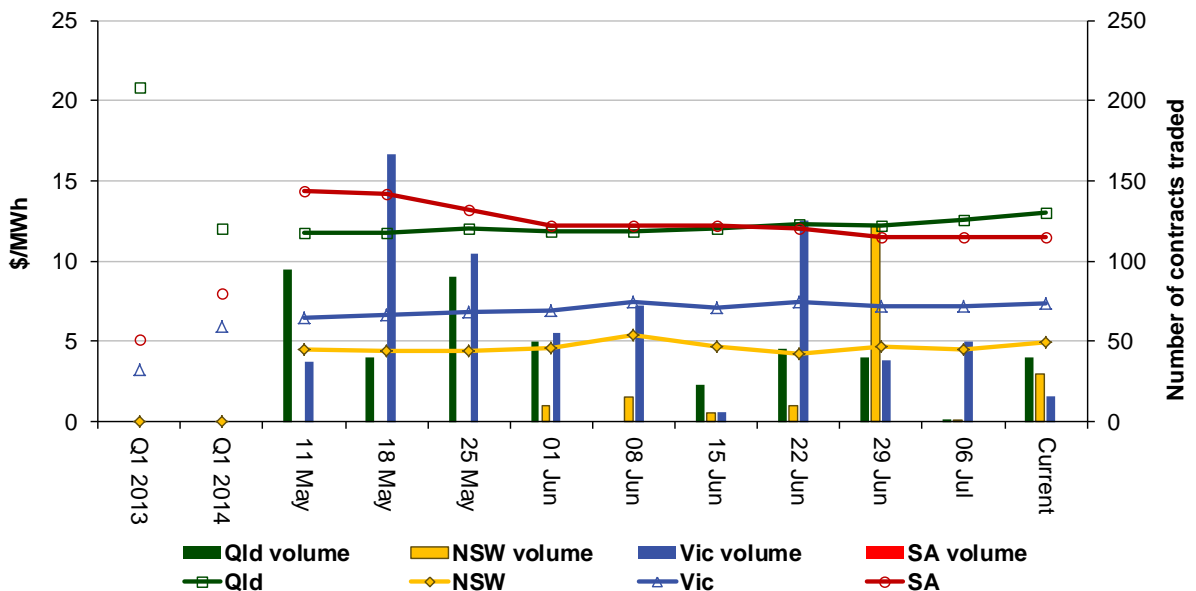
Note: Base contract prices are shown for each of the current week and the previous 9 weeks, with average prices shown for yearly periods 1 and 2 years prior to the current year

Source: ASXEnergy.com.au

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

Australian Energy Regulator
August 2014