

Electricity Report

5 to 11 January 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 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 1: Volume weighted average spot price by region (\$/MWh)

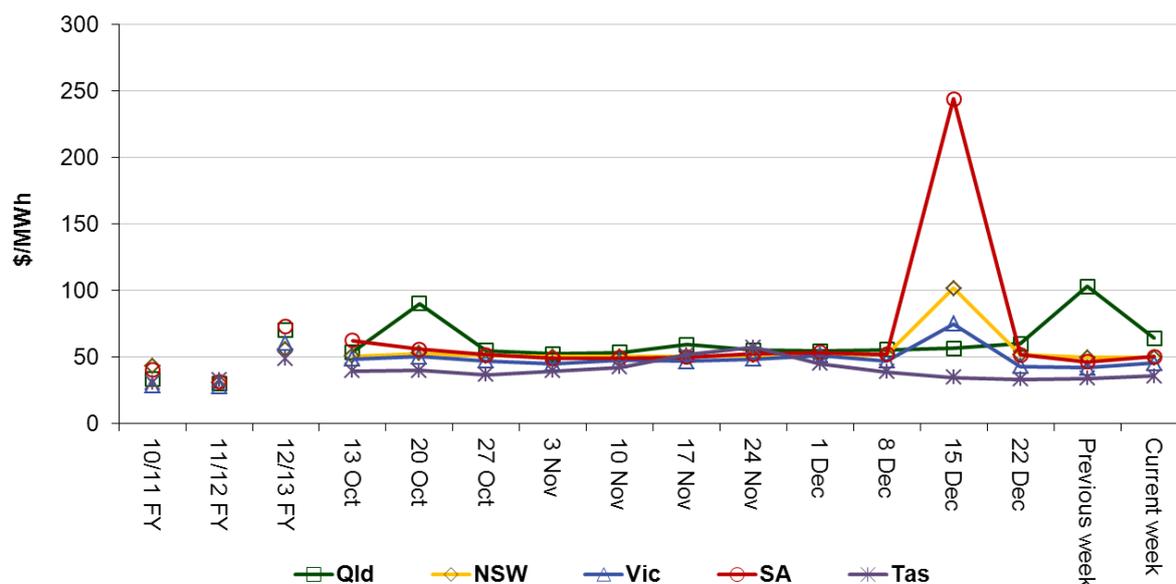


Table 1: Volume weighted average spot prices by region (\$/MWh)

Region	Qld	NSW	Vic	SA	Tas
Current week	64	50	46	51	36
12-13 financial YTD	70	56	61	73	49
13-14 financial YTD	61	55	59	79	43

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 66 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	11	0	2
% of total below forecast	13	61	0	11

Note: Due to rounding, the total may not be exactly 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 2 to 6 show, the total generation dispatched and the amounts of capacity offered within certain price bands for each 30 minute trading interval in each region.

The red ellipse on Figure 2 highlights the periods in Queensland where bids reduced the low priced available capacity, and the red ellipse on Figure 6 highlights the periods in Tasmania where bids increased the low priced available capacity.

Figure 2: Queensland generation and bidding patterns

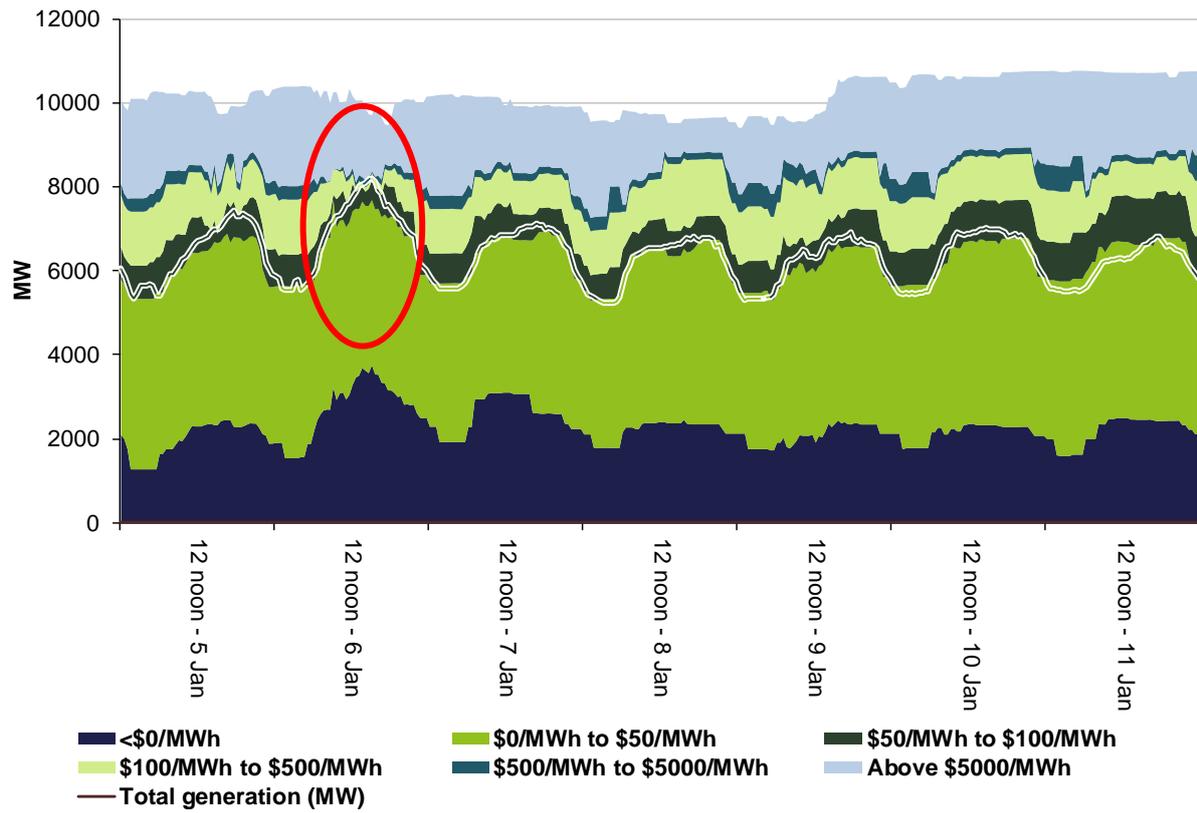


Figure 3: New South Wales generation and bidding patterns

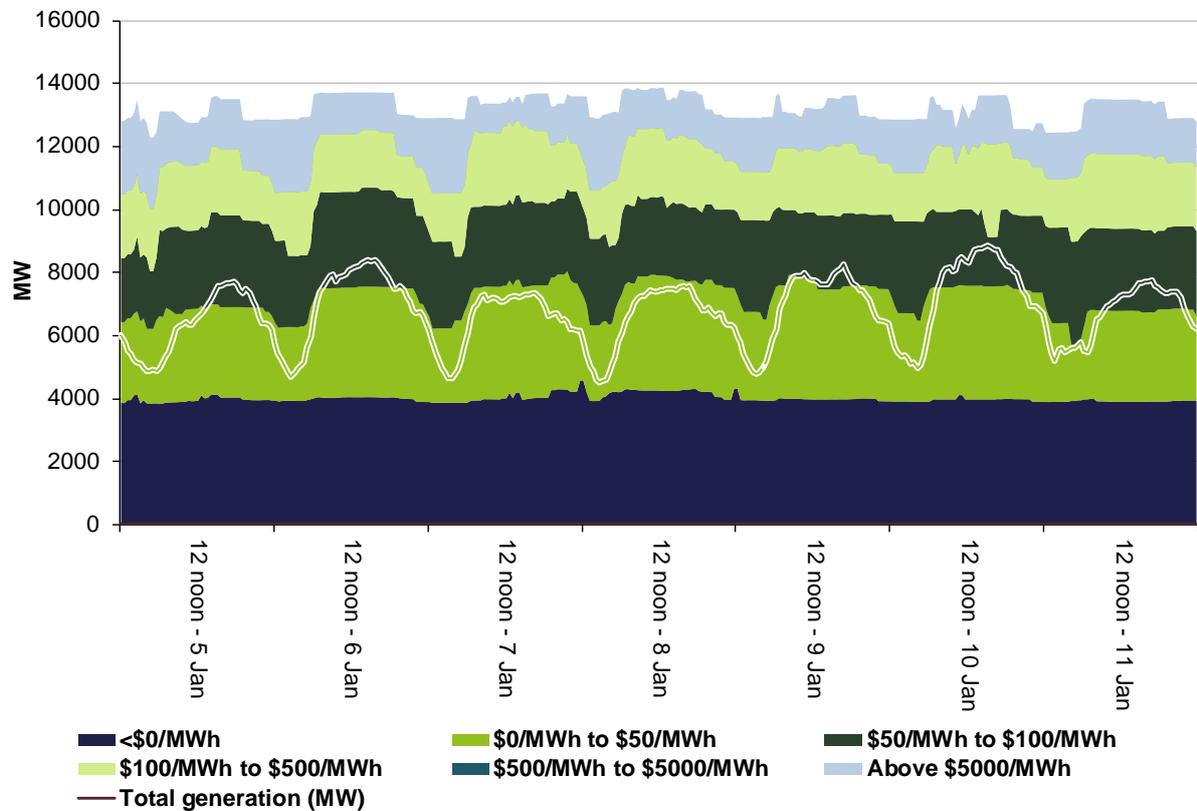


Figure 4: Victoria generation and bidding patterns

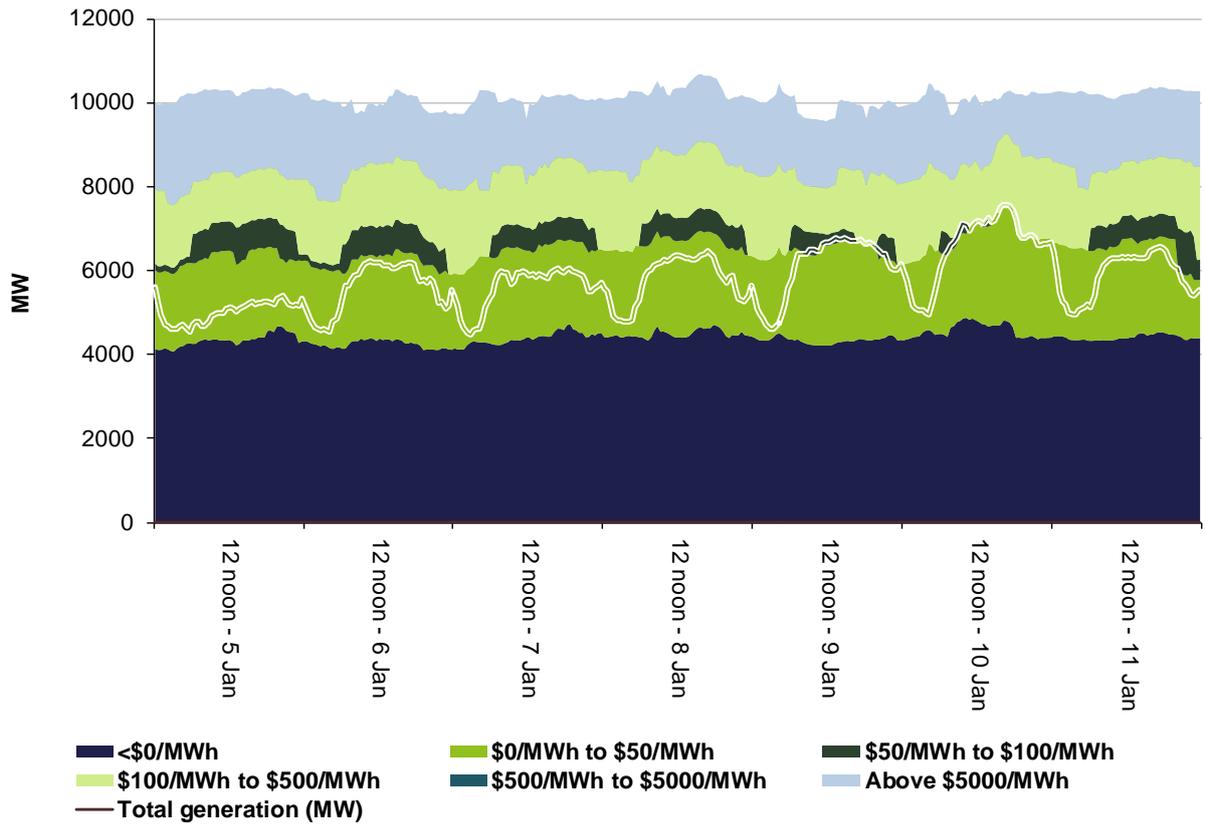


Figure 5: South Australia generation and bidding patterns

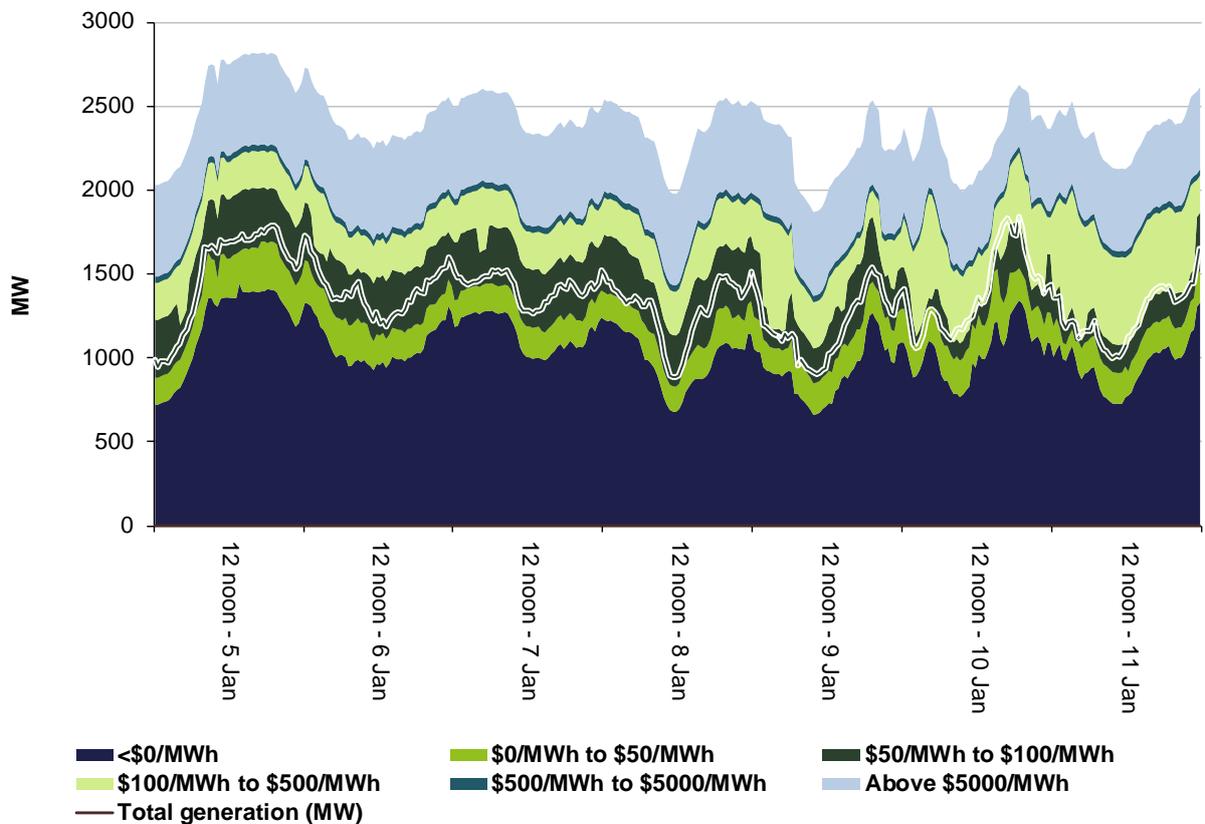
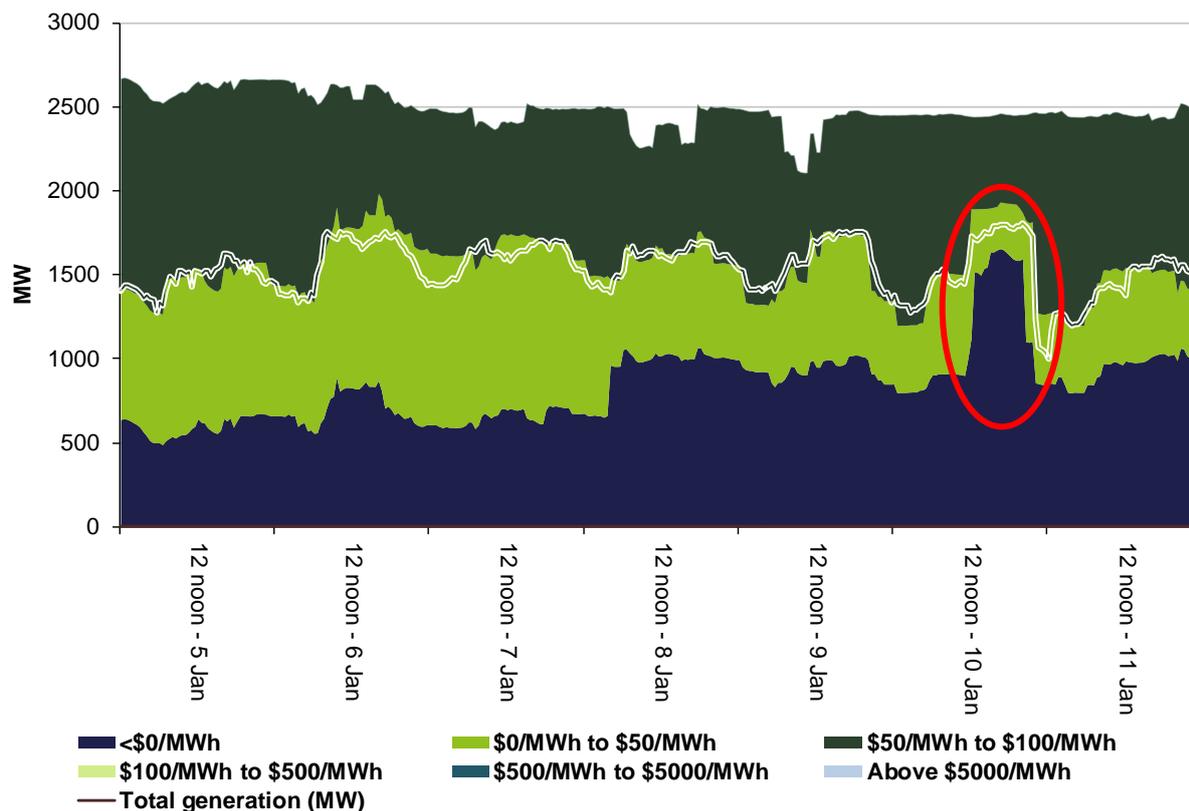


Figure 6: Tasmania generation and bidding patterns



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 \$141 500 or less than 1 per cent of energy turnover on the mainland.

The total cost of FCAS in Tasmania for the week was \$192 000 or around 3 per cent of energy turnover in Tasmania. The majority of this cost accrued over two events on 9 and 10 January.

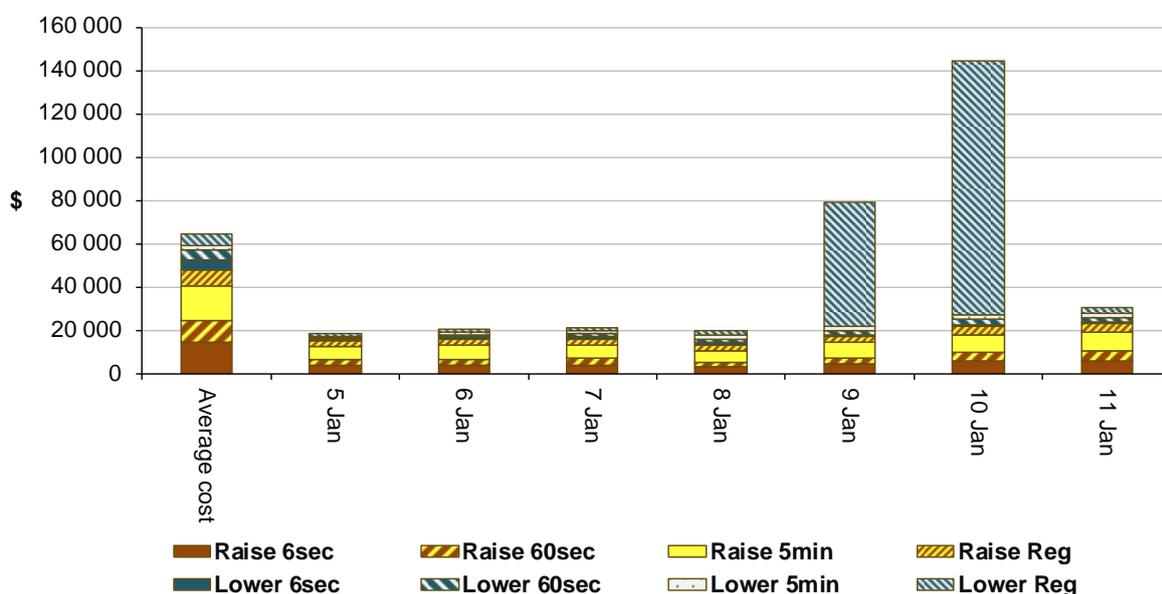
On 9 January, at 5.17 pm the availability of Basslink was rebid from 594 MW down to 571 MW. The reason given was “Scenario 1”, which the AER understands means that Basslink was operating outside its technical envelope and flow needed to be reduced. As a result, the target and maximum

availability of Basslink converged at 5.35 pm. With no headroom on Basslink to transfer lower services from the mainland, they had to be sourced locally and local lower regulation services increased from 26 MW at 5.30 pm to 50 MW at 5.35 pm. With only 26 MW of local lower regulation services available at prices below the price cap (of \$13 100/MW), high price capacity was dispatched lifting the 5-minute price to the price cap at 5.35 pm.

The situation was similar on 10 January. At 6.12 pm when the availability of Basslink was rebid from 594 MW to 571 MW. Again the reason given was “Scenario 1” and the target and maximum availability of Basslink converged for the 6.35 pm and 6.40 pm dispatch intervals. The requirement for local lower regulation increased from 26 MW at 6.30 pm to 50 MW at 6.35 pm. With only 26 MW of local lower regulation services available at prices below the price cap (of \$13 100/MW), high price capacity was dispatched lifting the 5-minute price to the price cap for the 6.35 pm and 6.40 pm dispatch intervals.

Figure 7 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.

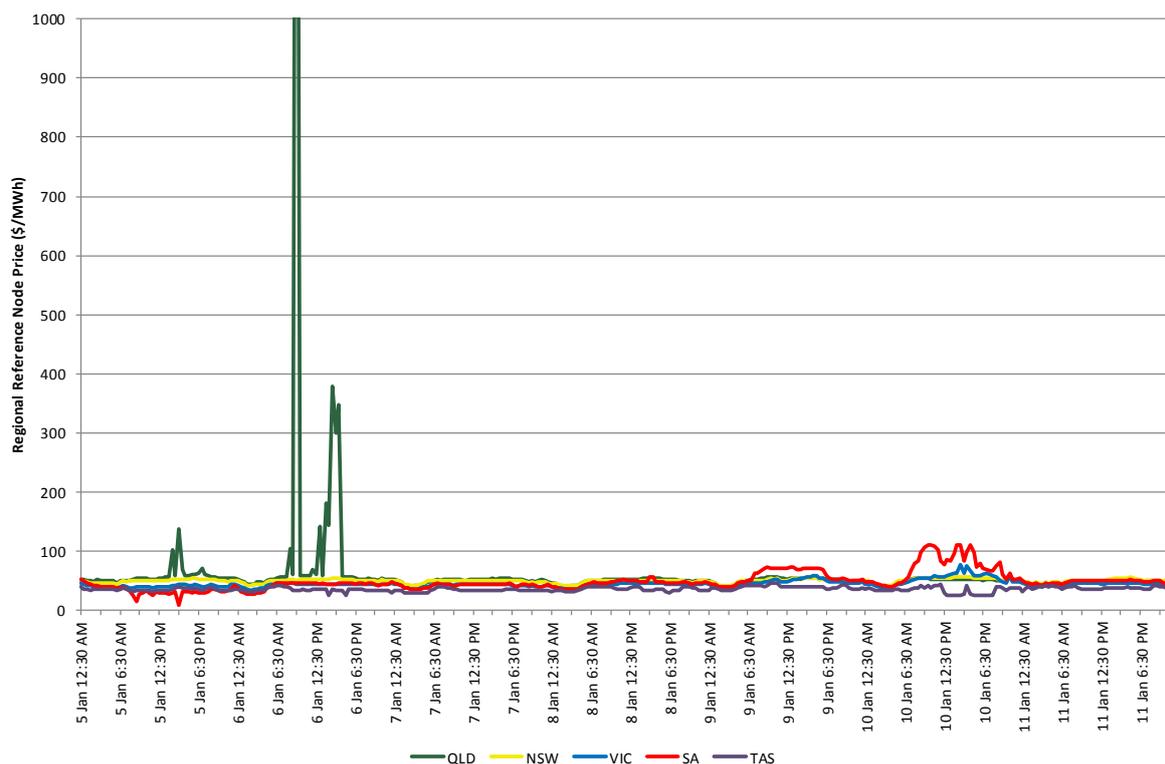
Figure 7: Daily frequency control ancillary service cost



Detailed market analysis of significant price events

Figure 8 shows the spot prices in each region for the week. This highlights the significant price spike in Queensland on 6 January 2014. For clarity prices greater than \$1000/MWh have not been shown on the graph but will be described in the accompanying explanatory text.

Figure 8: Regional Spot Prices



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, as shown below.

Table 3: Queensland, Monday 6 January

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
9:30 AM	2230.95	248.50	162.59	7303	7355	7161	10 268	10 390	10 394

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

The dispatch price reached the price cap at 9.25 am, but was around \$60/MWh for most of the trading interval.

Over two rebids at 9.16 am and 9.18 am, both effective from 9.25 am, CS Energy rebid a total of 290 MW of available capacity at Gladstone power station from prices below \$60/MWh to the price cap. The reason given for both rebids was “0915A interconnector constraint-QNI binding-SL”. These rebids, coupled with an increase in demand of around 100 MW from 9.20 am to 9.25 am and the fact that low-priced generation was either fully dispatched, ramp rate limited or trapped in FCAS, resulted the dispatch of high-price generation and the 5 minute price reaching the price cap at 9.25 am.

With Queensland generators rebidding into low prices seeking to be dispatched and a reduction in demand of around 170 MW from 9.25 am to 9.30, at 9.30 am prices returned to previous levels.

Table 4: Queensland, Monday 6 January

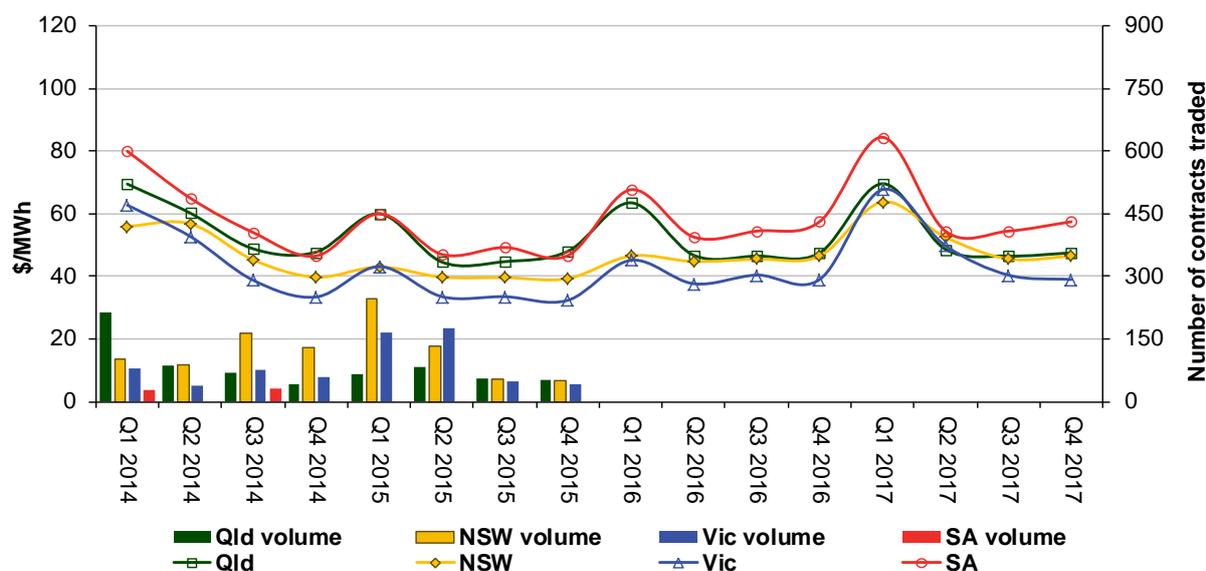
Time	Price (\$/MWh)			Demand (MW)			Availability (MW)		
	Actual	4 hr forecast	12 hr forecast	Actual	4 hr forecast	12 hr forecast	Actual	4 hr forecast	12 hr forecast
3:00 PM	379.13	289.99	460.50	8289	8022	8255	9890	10 382	10 347
3:30 PM	299.76	460.50	1400.57	8237	8250	8311	9768	10 382	10 347
4:00 PM	346.91	289.99	11 500.00	8106	8273	8365	10 006	10 379	10 347

Table 4 shows that actual prices were close to forecast four hours ahead. There were no significant 5-minute price spikes during the high price periods (there were three \$1500/MWh dispatch prices). Rebidding by some participants saw capacity shifted from low price bands to high price bands and vice versa. .

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.

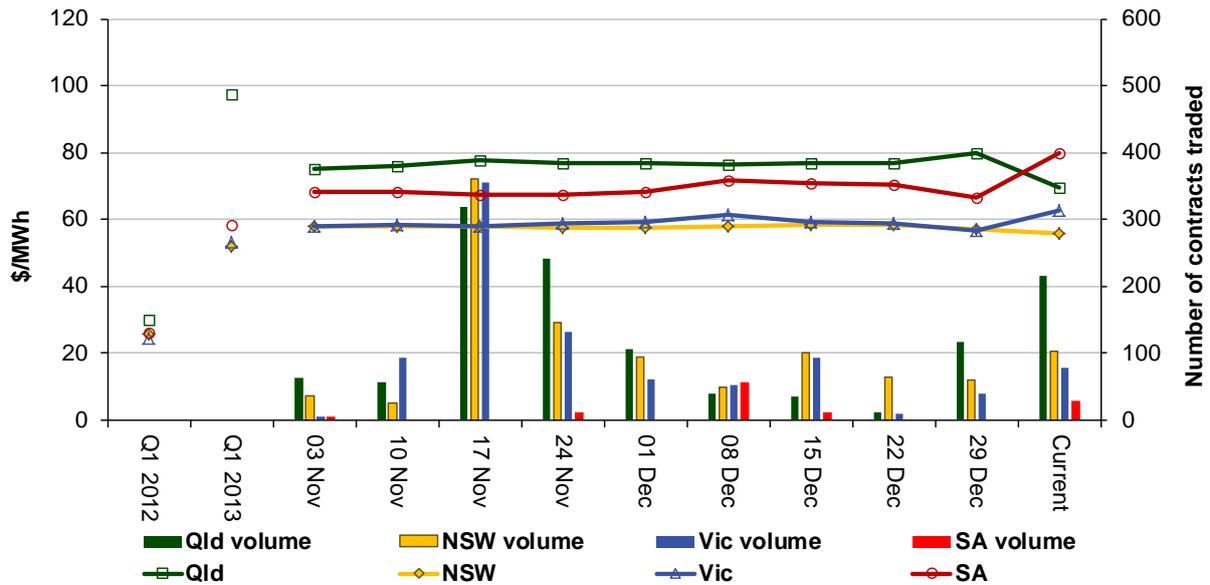
Figure 9: Quarterly base future prices Q1 2014 – Q4 2017



Source: ASXEnergy.com.au

Figure 10 shows how the price for each regional Quarter 1 2014 base contract has changed over the last 10 weeks (as well as the total number of trades each week). The closing quarter 1 2012 and quarter 1 2013 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 2014 base contracts over the past 10 weeks (and the past 2 years)



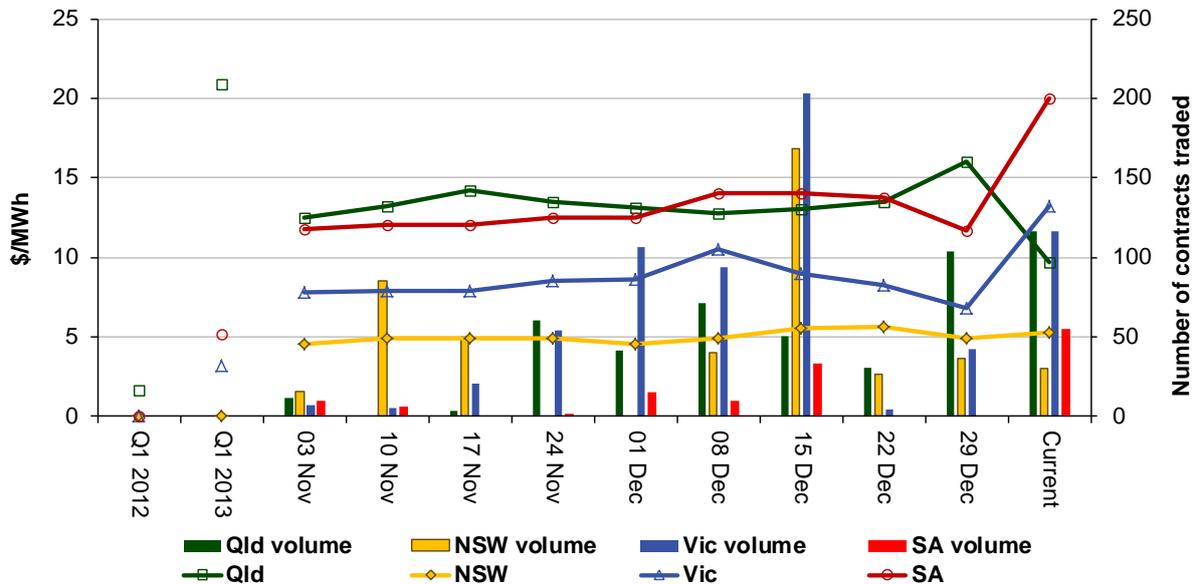
Note: Base contract prices are shown for each of the current week and the previous 9 weeks, with average prices shown for yearly periods 1 and 2 years prior to the current year

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 2014 cap contract has changed over the last 10 weeks (as well as the total number of trades each week). The closing quarter 1 2012 and quarter 1 2013 prices are also shown.

Figure 11: Price of Q1 2014 cap contracts over the past 10 weeks (and the past 2 years)



Source: ASXEnergy.com.au

Australian Energy Regulator

February 2014