Electricity Report
18 – 24 January 2015

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 18 to 24 January 2015. There was one spot price above $5000/MWh on 18 January. As required under clause 3.8.17 of the National Electricity Rules, the AER will publish a separate report into the events on that day.

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

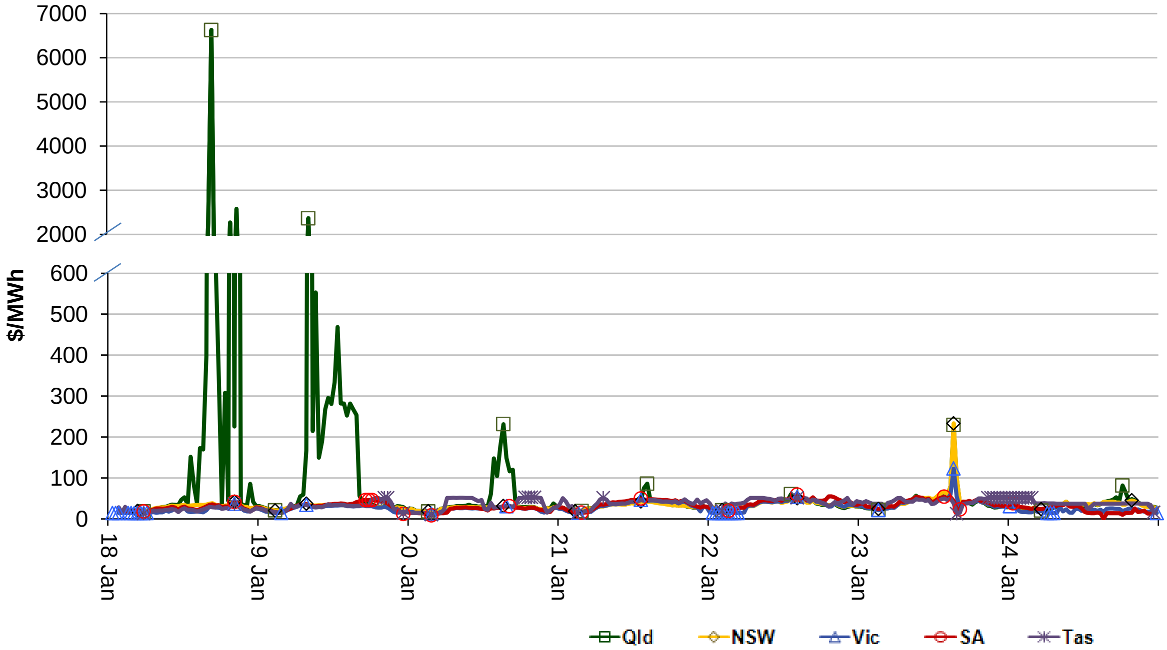


Figure 2 shows the volume weighted average (VWA) prices for the current week (with prices shown in Table 1) and the preceding 12 weeks, as well as the VWA price over the previous 3 financial years.

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

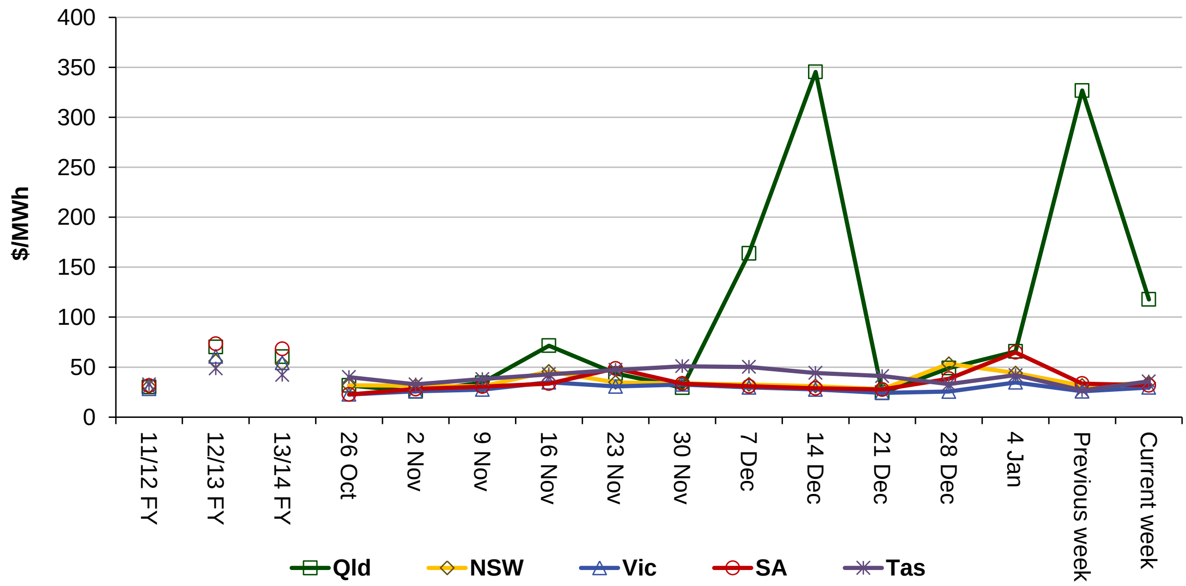


Table 1 : Volume weighted average spot prices by region ($/MWh)

Region	Qld	NSW	Vic	SA	Tas
Current week	118	34	30	32	36
13-14 financial YTD	61	53	54	68	42
14-15 financial YTD	65	37	33	41	38

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 143 trading intervals throughout the week where actual prices varied significantly from forecasts. This compares to the weekly average in 2014 of 71 counts and the average in 2013 of 97. 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

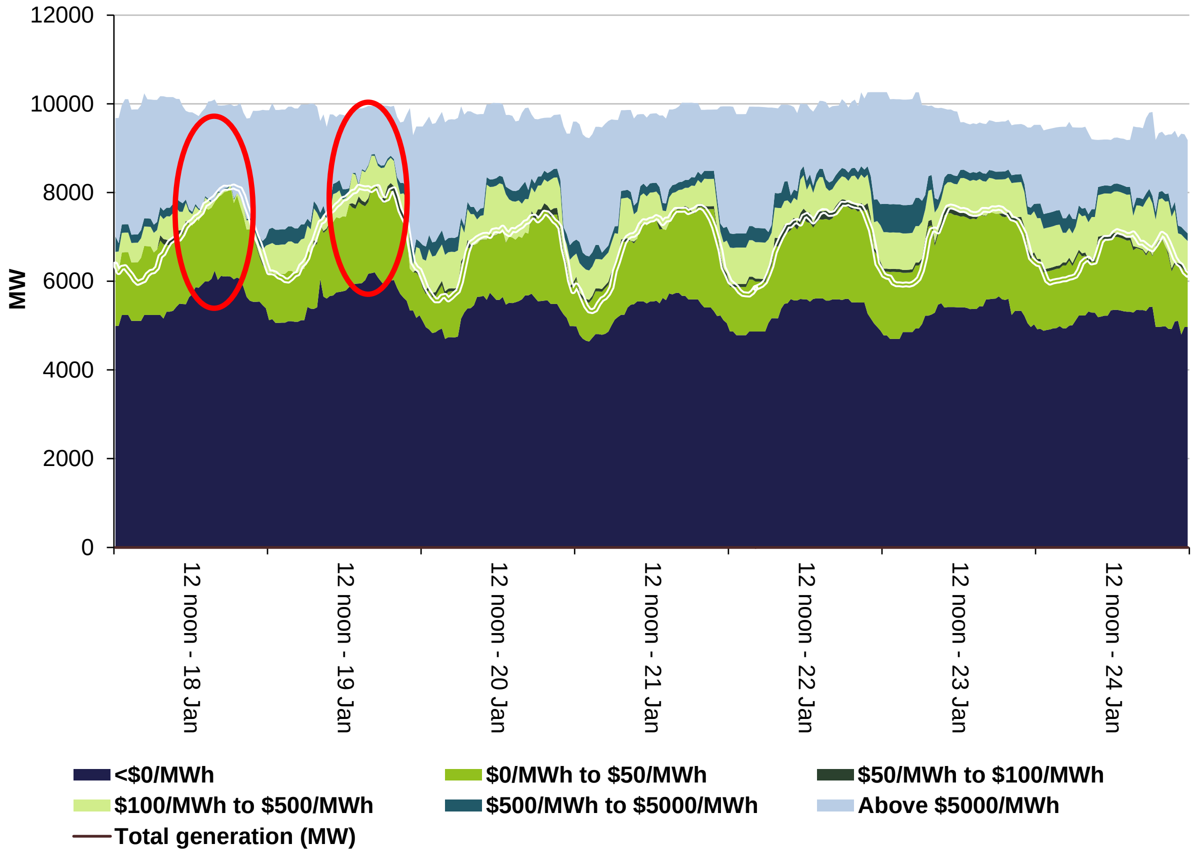
	Availability	Demand	Network	Combination
% of total above forecast	6	42	0	1
% of total below forecast	39	11	0	1

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



The red ellipses highlight the changes in capacity being offered at high prices which align with the high spot price periods. A detailed analysis of the events relating to these periods is in the detailed market analysis of significant price events section.

Figure 4 : New South Wales generation and bidding patterns

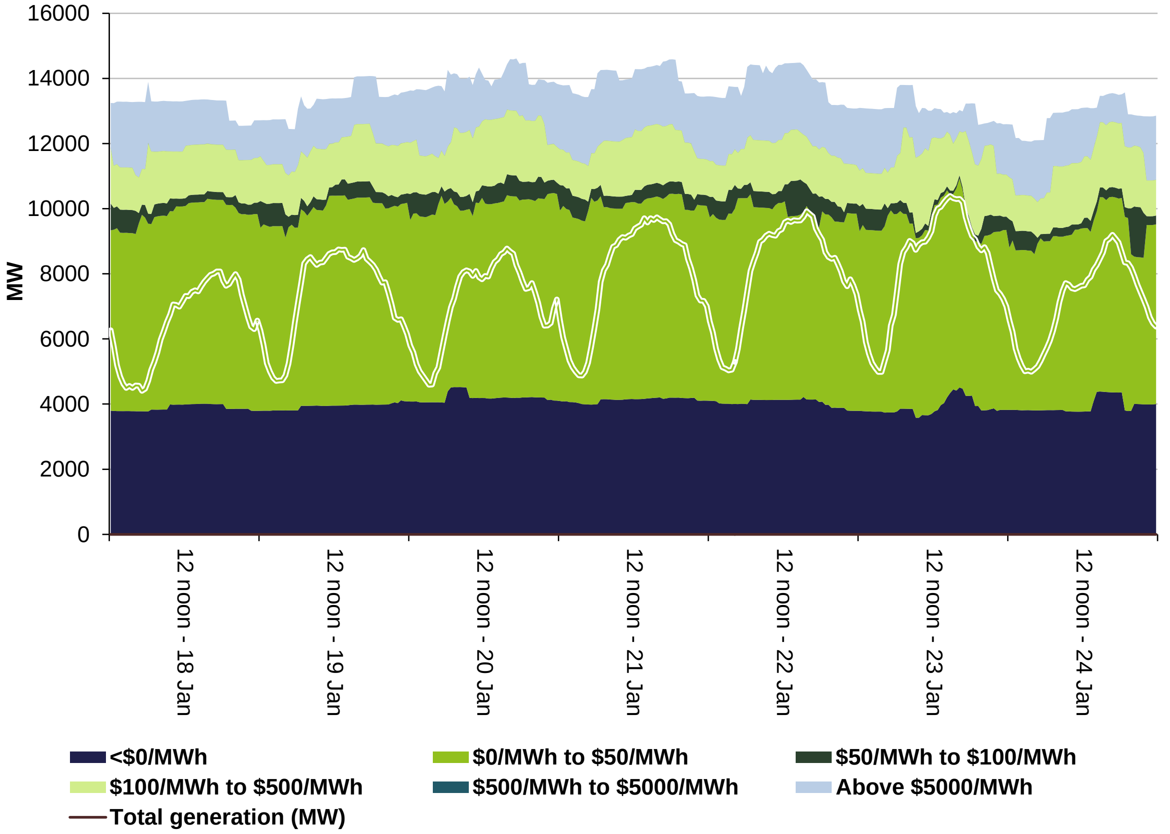


Figure 5 : Victoria generation and bidding patterns

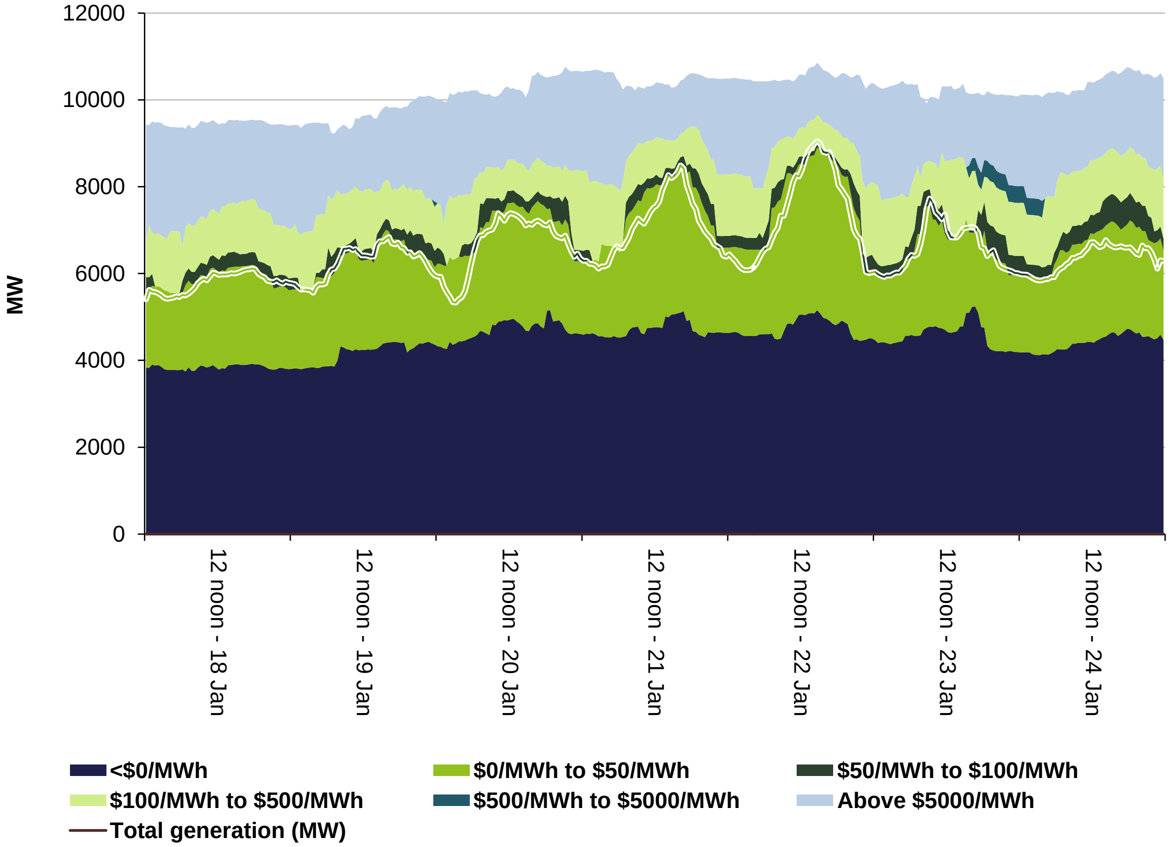


Figure 6: South Australia generation and bidding patterns

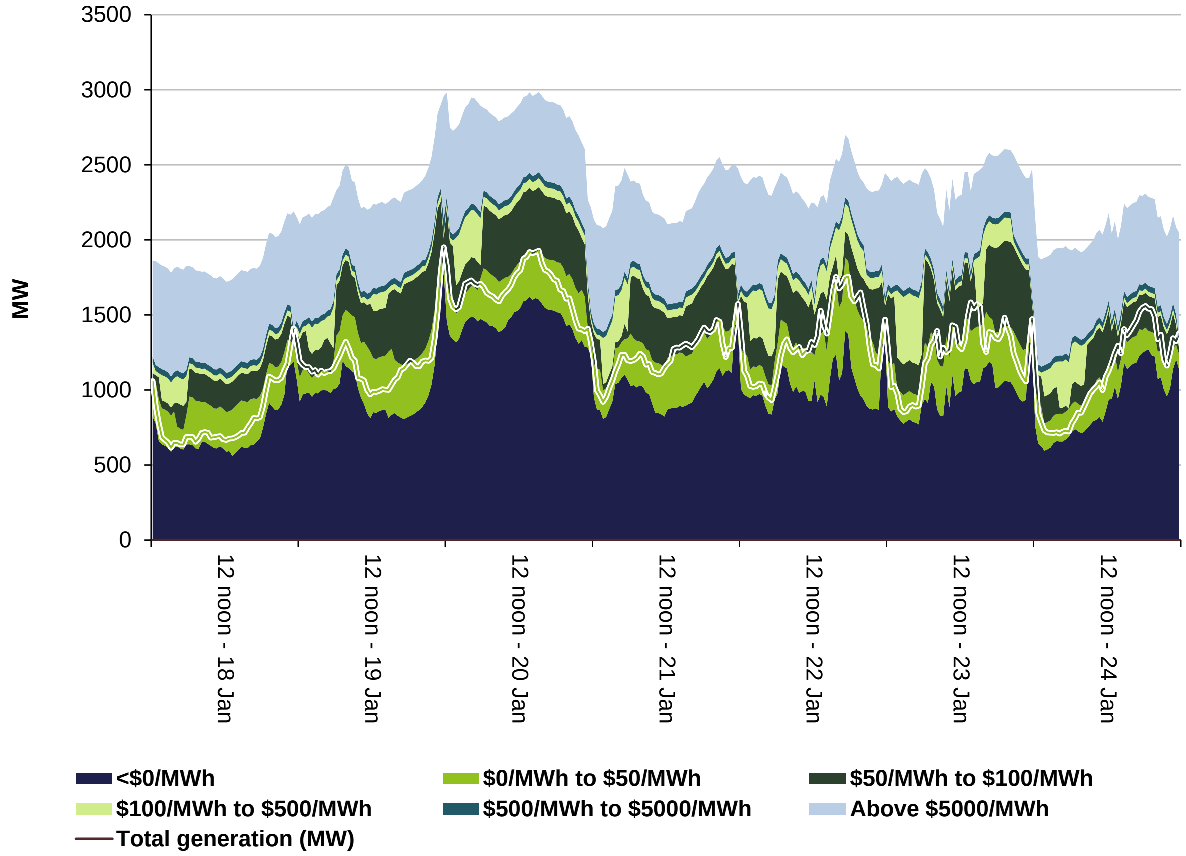
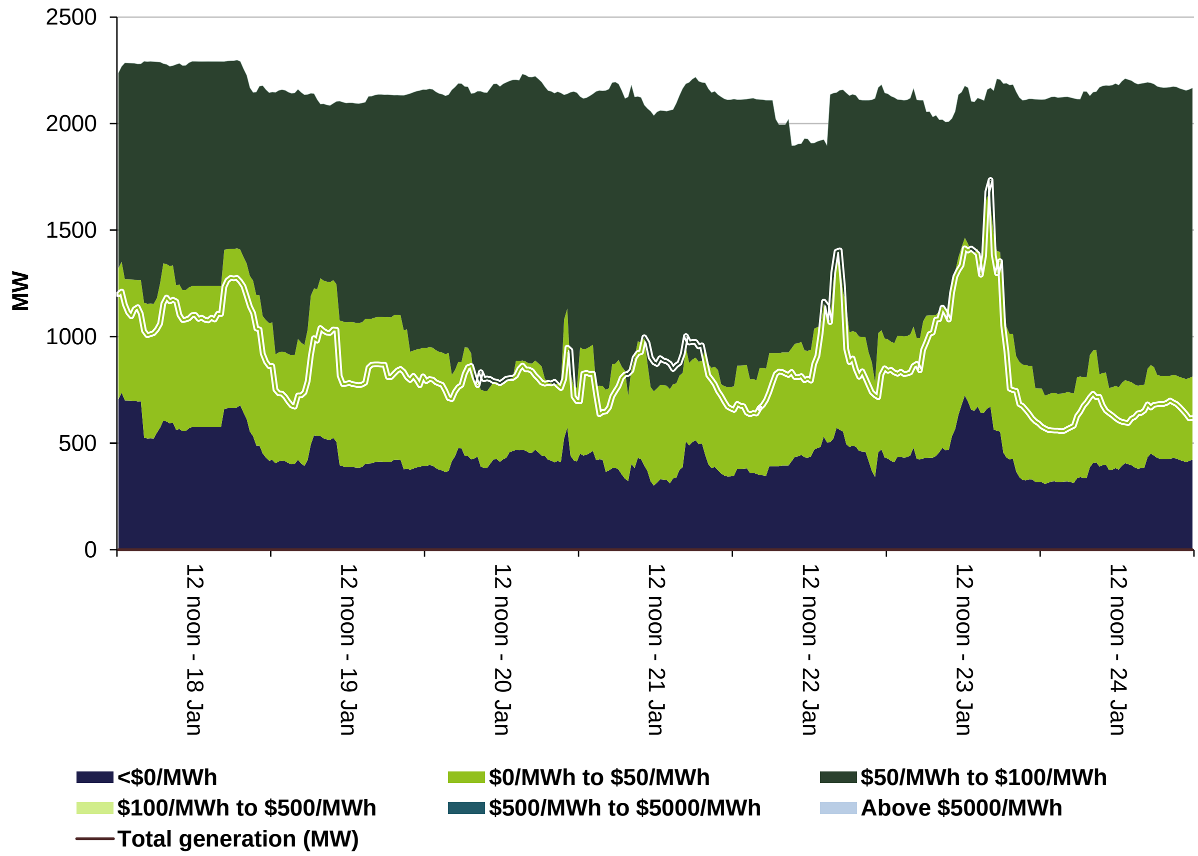


Figure 7: Tasmania generation and bidding patterns



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 $516 000 or less than 1 per cent of energy turnover on the mainland.

The total cost of FCAS in Tasmania for the week was $494 500 or around 8 per cent of energy turnover in Tasmania. The high FCAS cost in Tasmania was mainly driven by the lower 6 second service.

Figure 8 : Daily frequency control ancillary service cost

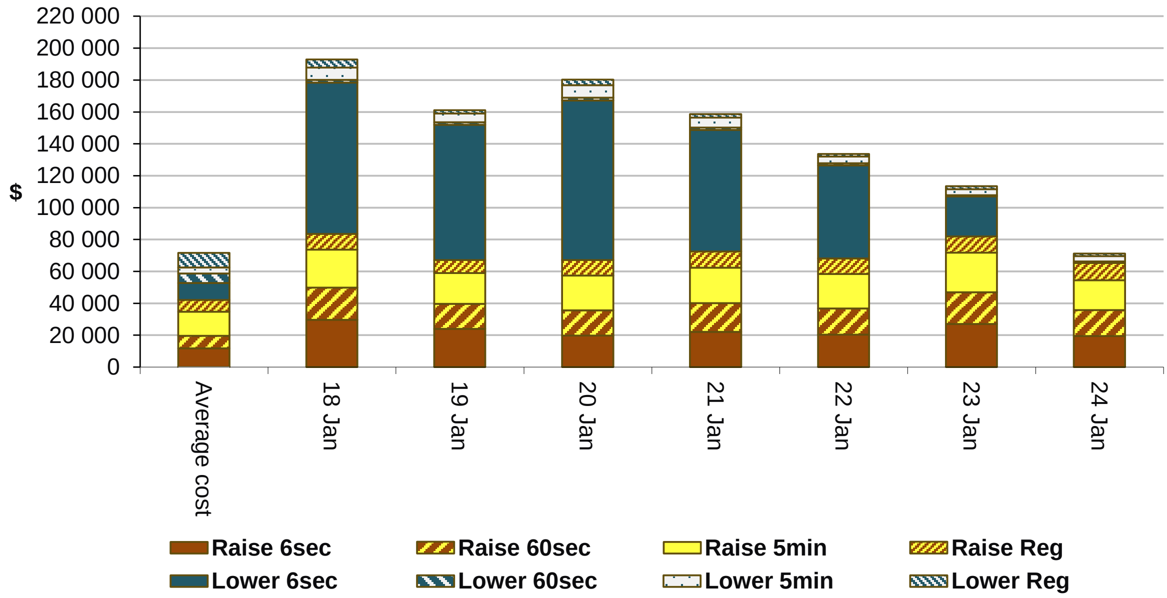


Figure 8 shows the daily breakdown of cost for each FCAS for the NEM, as well as the average cost since the beginning of the previous financial year. During the week a system normal constraint managing the requirement for lower 6 second service for the loss of two Bell Bay Aluminium potlines was binding and Basslink was unable to transfer FCAS. This meant that all Tasmanian FCAS services had to be sourced locally. Over the week the cost of lower 6 second services was around $440 000. On 23 January at around 6 pm AEMO issued a market notice allowing contingency lower FCAS to be sourced globally which reduced the local requirement and the high cost of lower 6 second services reduced to average levels.

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 nine occasions where the spot price in Queensland was greater than three times the Queensland weekly average price of $118/MWh and above $250/MWh.

During the high prices on 18 and 19 January flow across both QNI and the Terranora interconnectors into Queensland were being limit to a total of between 184 MW and 275 MW. This was slightly less than forecast four hours ahead.

Queensland - Sunday, 18 January

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
4:00 PM	396.90	34.69	30.05	8025	7903	7858	10 078	9995	10 300
4:30 PM	2262.28	33.64	30.82	8082	7978	7953	10 098	9965	10 300
5:00 PM	6625.75	34.98	34.75	8168	8078	8017	10 089	9977	10 325
5:30 PM	623.34	34.22	33.92	8204	8112	7995	10 094	10 094	10 327

The above prices will be discussed in the relevant *Spot prices above $5000/MWh* report.

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
8:00 PM	2270.37	33.84	35.50	8155	7883	7908	10 119	9986	10 217
9:00 PM	2578.65	35.14	35.50	7759	7546	7605	9797	9983	10 158

Conditions at the time saw demand around 210 MW higher than forecast four hours ahead. Available capacity was higher than forecast for the 8 pm trading interval and lower than forecast for the 9 pm trading interval.

Table 5 : Rebids for 8 pm

Time in	Time effective	Participant	Station	Capacity rebid (MW)	Price from ($/MWh)	Price to ($/MWh)	Rebid reason
5.58 pm	6.05 pm	Millmerran Energy Trader	Millmerran	100	7	13 500	17:58 F portfoliop adjustment - SL
6.37 pm	6.45 pm	Stanwell	Stanwell	175	26	13 499	1836A change in QNI 5min flow VS. 30min PD @ 1835hrs
7.24 pm	7.35 pm	AGL	Yabulu	86	150	13 243	1920~F~080 CHG IN pipeline cond~manage imbal position NQGP
7.50 pm	8 pm	CS Energy	Gladstone and Callide	140	35	13 500	1947A interconnector constraint-QNI binding-SL
7.51 pm	8 pm	Stanwell	Tarong	30	48	13 500	1930A change in QLD generation - Oakey1
7.52 pm	8 pm	Callide Power Trading	Callide C	40	-1000	13 500	1952A RRP above PD
Total capacity rebid from low to high prices				**571**			

With low-priced capacity either ramp rate limited or fully dispatched, the dispatch price increased from $50/MWh at 7.45 pm to around $210/MWh at 7.50 pm and 7.55 pm then to $12 950/MWh at 8 pm with Stanwell and Tarong units setting the price.

Table 6 : Rebids for 9 pm

Time in	Time effective	Participant	Station	Capacity rebid (MW)	Price from ($/MWh)	Price to ($/MWh)	Rebid reason
5.58 pm	6.05 pm	Millmerran Energy Trader	Millmerran	100	7	13 500	17:58 F portfoliop adjustment - SL
7.51 pm	8 pm	Stanwell	Tarong	30	48	13 500	1930A change in QLD generation - Oakey1
7.57 pm	8.05 pm	Stanwell	Stanwell	175	26	13 500	1956A manage QNI binding constraint
8.16 pm	8.35 pm	AGL	Yabulu	-155	2221	N/A	2010~P~010 unexpected/plant limits~co-ordinated shutdown mode wi
8.51 pm	9 pm	Callide Power Trading	Callide C	40	-1000	13 500	2041A RRP below PD
8.52 pm	9 pm	CS Energy	Gladstone and Callide	140	35	13 500	2040A interconnector constraint-QNI binding-SL
Total capacity rebid from low to high prices				**485**			

With low-priced capacity either ramp rate limited or fully dispatched, the dispatch price increased from $210/MWh at 8.55 pm to $12 950/MWh 9 pm with Stanwell and Tarong units setting the price.

Queensland - Monday, 19 January

Table 7: Price, Demand and Availability between 7pm and 8pm

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
8:30 AM	2367.16	95.60	42.49	7498	7361	7281	9973	10 099	10 174
9:30 AM	553.25	211.00	199.49	7638	7624	7498	9664	9984	10 060
1:00 PM	468.30	300.45	300.45	8127	8041	8000	9883	10 133	10 275

Conditions at the time saw demand close to that forecast. Available capacity was up to 320 MW below that forecast.

Table 8 : Rebids for 8.30 am

Time in	Time effective	Participant	Station	Capacity rebid (MW)	Price from ($/MWh)	Price to ($/MWh)	Rebid reason
6.58 am	7.05 am	Millmerran Energy Trader	Millerran	55	7	13 500	06:55 A change in 5min PD QNI flow - SL
8.11 am	8.20 am	CS Energy	Gladstone	120	93	13 500	0811A dispatch price higher than 30min forecast-SL
8.15 am	8.25 am	Stanwell	Stanwell	70	26	13 500	0813A QLD 5min demand above 30min PD @ 0815hrs
8.16 am	8.25 am	AGL	Oakey	-171	<287	N/A	0816F avoid uneconomic start::change avail/mw distrib.-
Total capacity rebid from low to high prices				**245**			

With demand increasing and low-priced capacity either ramp rate limited or fully dispatched, the dispatch price increased from $150/MWh at 8.15 am to $301/MWh at 8.20 pm then to $13 499/MWh at 8.25 am, set by Stanwell, Kareeya and Tarong units. The price fell to $37/MWh at 8.30 am when the above rebid at Oakey was reversed.

Table 9 : Rebids for 9.30 am

Time in	Time effective	Participant	Station	Capacity rebid (MW)	Price from ($/MWh)	Price to ($/MWh)	Rebid reason
6.58 am	7.05 am	Millmerran Energy Trader	Millerran	55	7	13 500	06:55 A change in 5min PD QNI flow - SL

Time in	Time effective	Participant	Station	Capacity rebid (MW)	Price from ($/MWh)	Price to ($/MWh)	Rebid reason
8.15 am	8.25 am	Stanwell	Stanwell	70	26	13 500	0813A QLD 5min demand above 30min PD @ 0815hrs
8.20 am	8.30 pm	CS Energy	Gladstone	-130	<13 500	N/A	0819P condenser backflush-SL
8.53 pm	9 pm	Millmerran Energy Trader	Millmerran	30	7	13 500	08:52 A RRP above PD
8.56 am	9.05 am	Arrow Energy	Braemar	-160	285	N/A	0855A QLD price higher than forecast: avoid uneconomic start SL
9.07 am	9.15 am	CS Energy	Gladstone	70	93	13 500	0906A dispatch price lower than 30min forecast-SL
Total capacity rebid from low to high prices				**225**			

With low-priced capacity either ramp rate limited, fully dispatched or trapped in FCAS, the dispatch price ranged from $119/MWh at 9.05 am to $1501/MWh at 9.25.

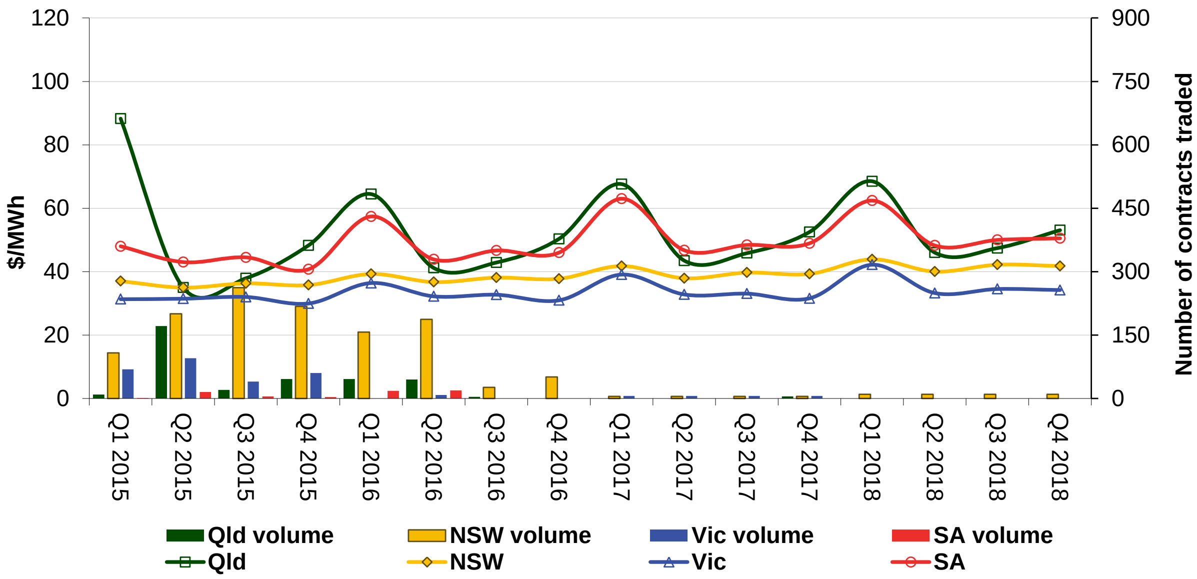
1 pm Trading Interval

Demand was 86 MW higher than forecast four hours before. Available capacity was 250 MW lower than forecast four hours before. Despite this, actual prices were close to the four hour forecast price, around $300/MWh, for all but one of the dispatch intervals at 12.40 pm which coincided with the tripped of the Yabulu power station. The available capacity of Yabulu was reduced by 125 MW all of which was priced below $90/MWh. This saw the dispatch price reach $1501/MWh at 12.40 pm.

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.

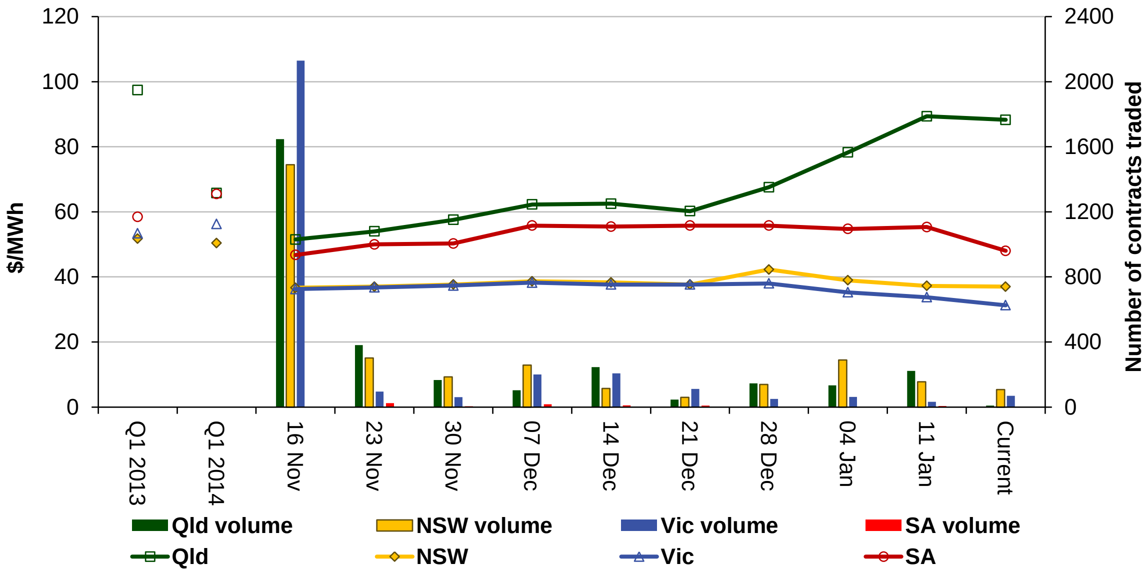
Figure 9 : Quarterly base future prices Q1 2015 – Q4 2018



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. The high volume of trades in Figure 10 is due to options on calendar year base load expiring on Wednesday 19 November.

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



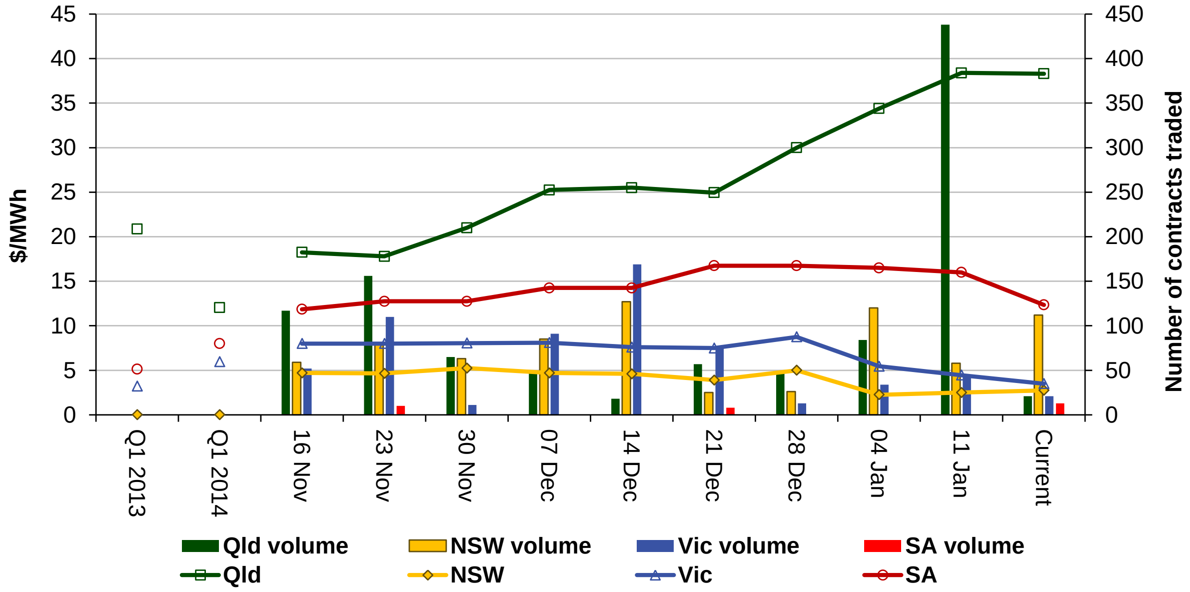
Note: Base contract prices are shown for each of the current week and the previous 9 weeks, with average prices shown for yearly periods 1 and 2 years prior to the current year

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 : Price of Q1 2015 cap contracts over the past 10 weeks (and the past 2 years) 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. The Queensland Q1 2105 cap contract price has now reached levels that were experienced in Q1 2013 when network capacity in central Queensland was providing opportunities for generation portfolios to raise prices.

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

February 2015