

Electricity Report

29 March – 4 April 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 29 March to 4 April 2015. There were four occasions during the week where the spot price was above \$250/MWh, as discussed in the *Detailed market analysis of significant price events* section.

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

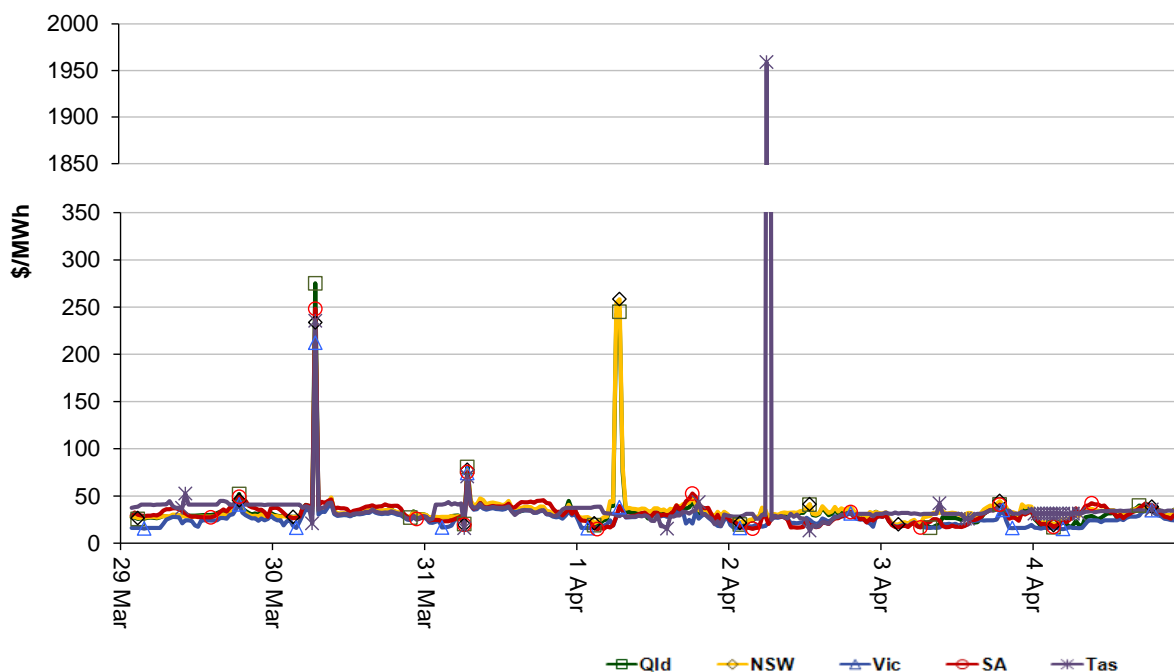


Figure 2 shows the volume weighted average (VWA) prices for the current week (with prices shown in Table 1) and the preceding 12 weeks, as well as the VWA price over the previous 3 financial years.

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

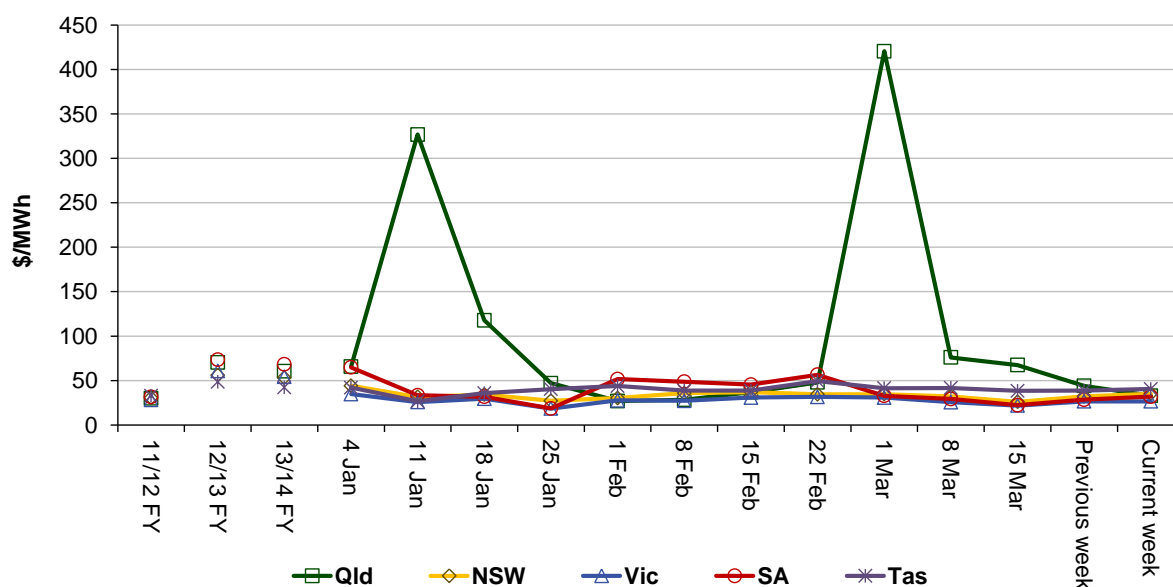


Table 1 : Volume weighted average spot prices by region (\$/MWh)

Region	Qld	NSW	Vic	SA	Tas
Current week	33	35	26	32	40
13-14 financial YTD	63	54	54	73	43
14-15 financial YTD	70	36	31	40	39

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 69 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

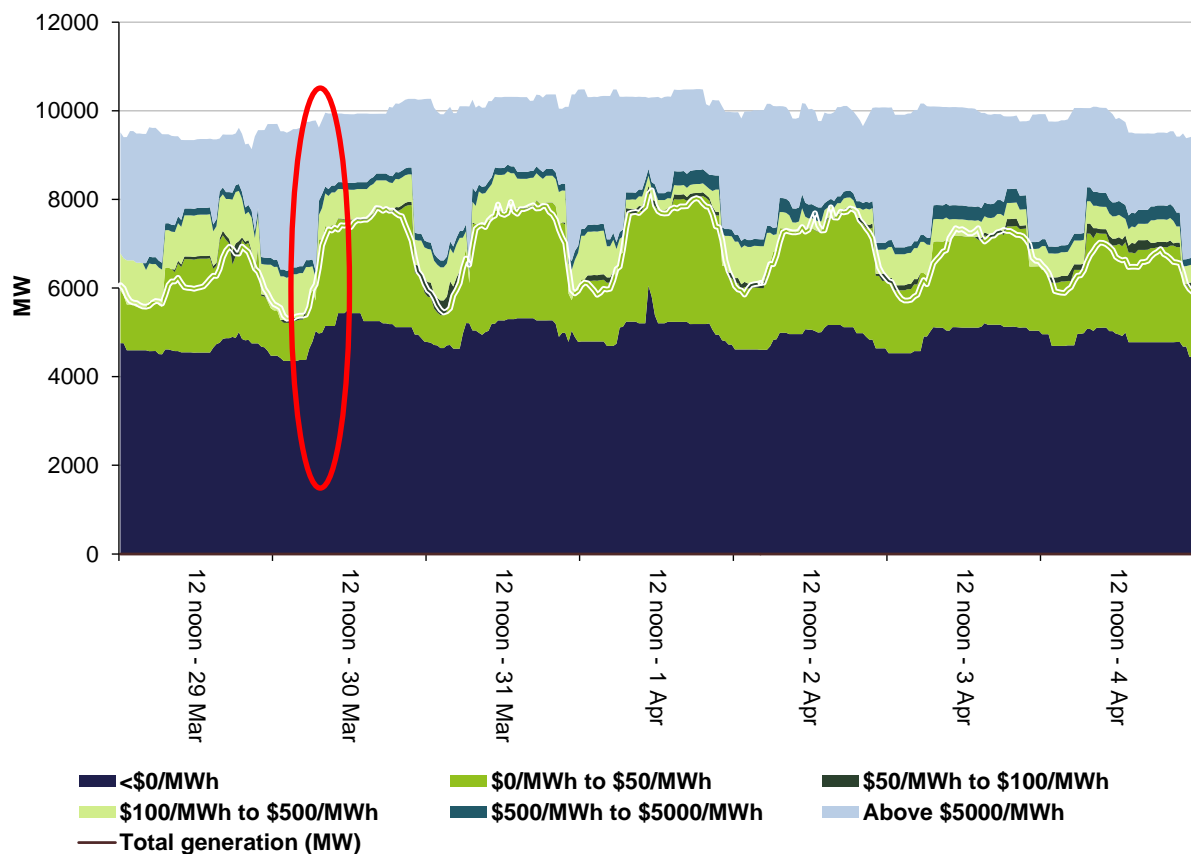
	Availability	Demand	Network	Combination
% of total above forecast	7	30	1	0
% of total below forecast	22	34	0	7

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 on Figure 3 and Figure 4 highlight periods of rebidding that correspond to the time of high prices in those regions. These are discussed in further detail later in the report.

Figure 4 : New South Wales generation and bidding patterns

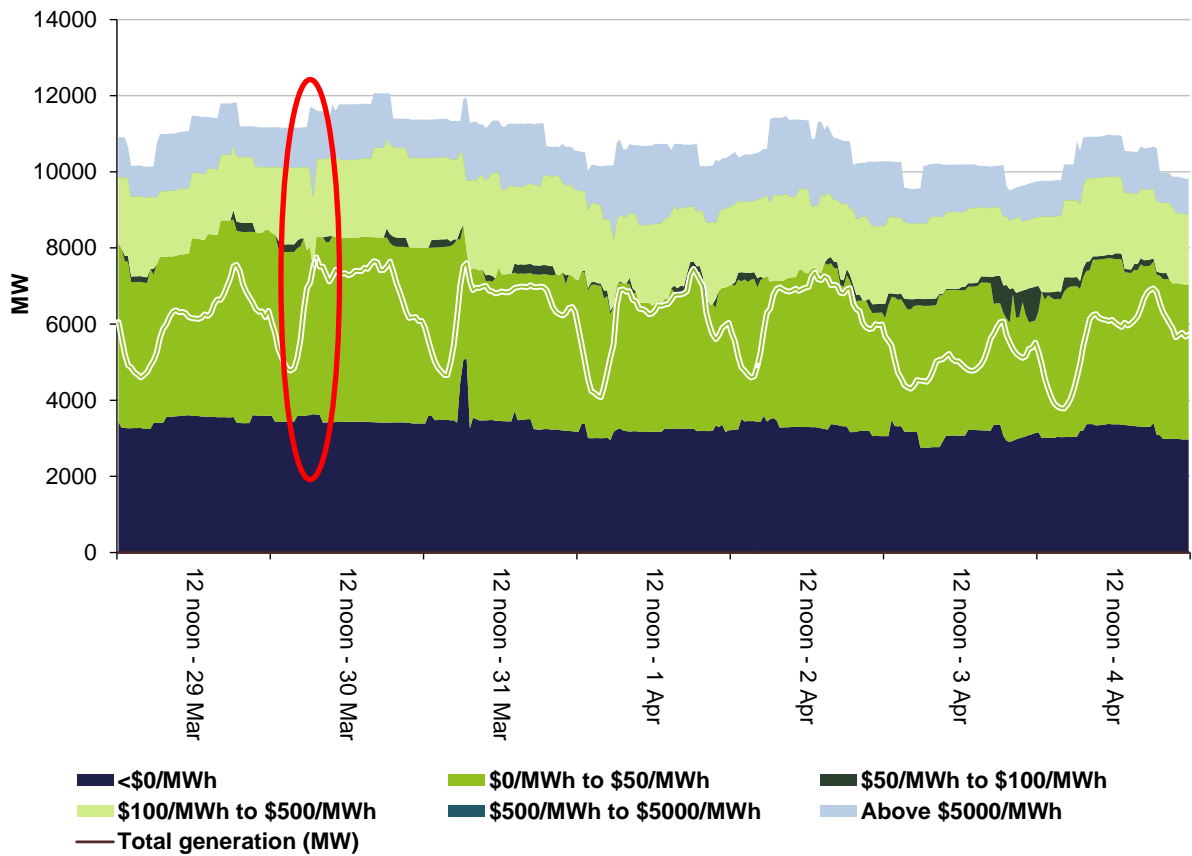


Figure 5 : Victoria generation and bidding patterns

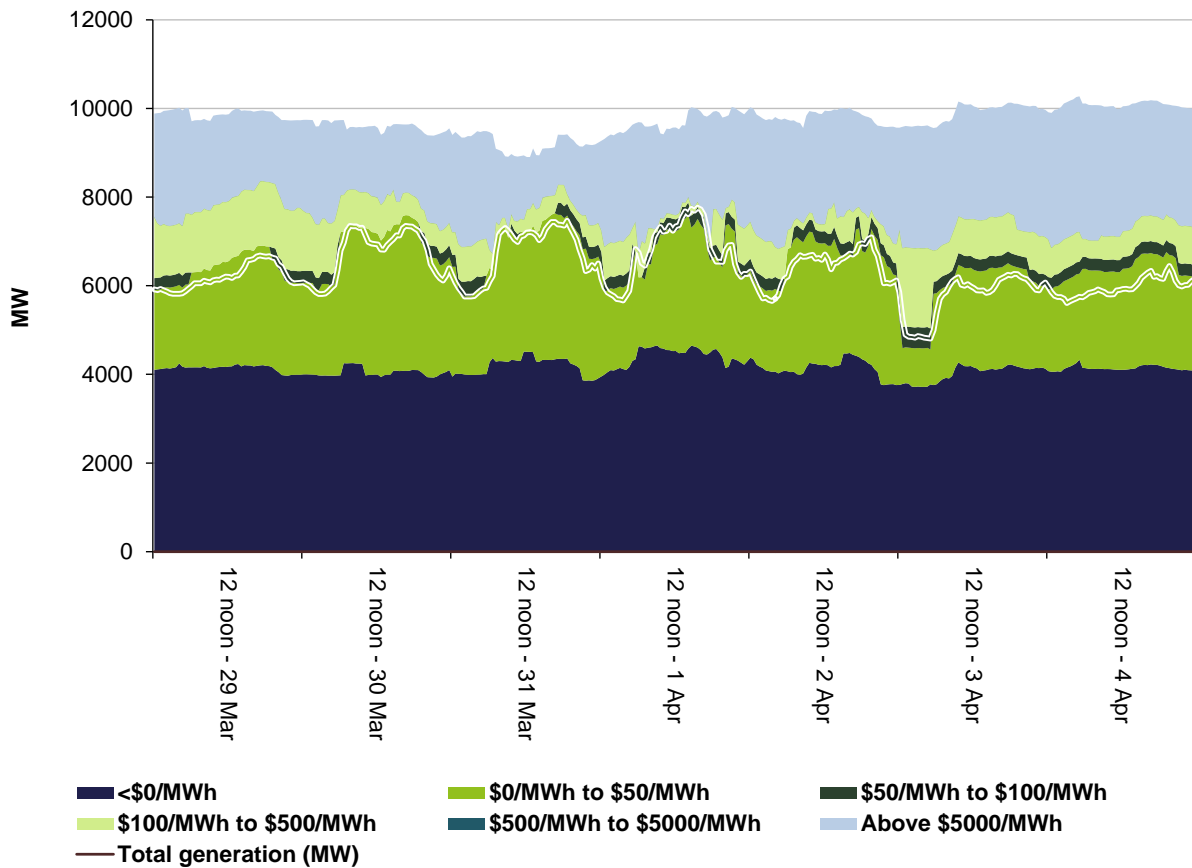


Figure 6: South Australia generation and bidding patterns

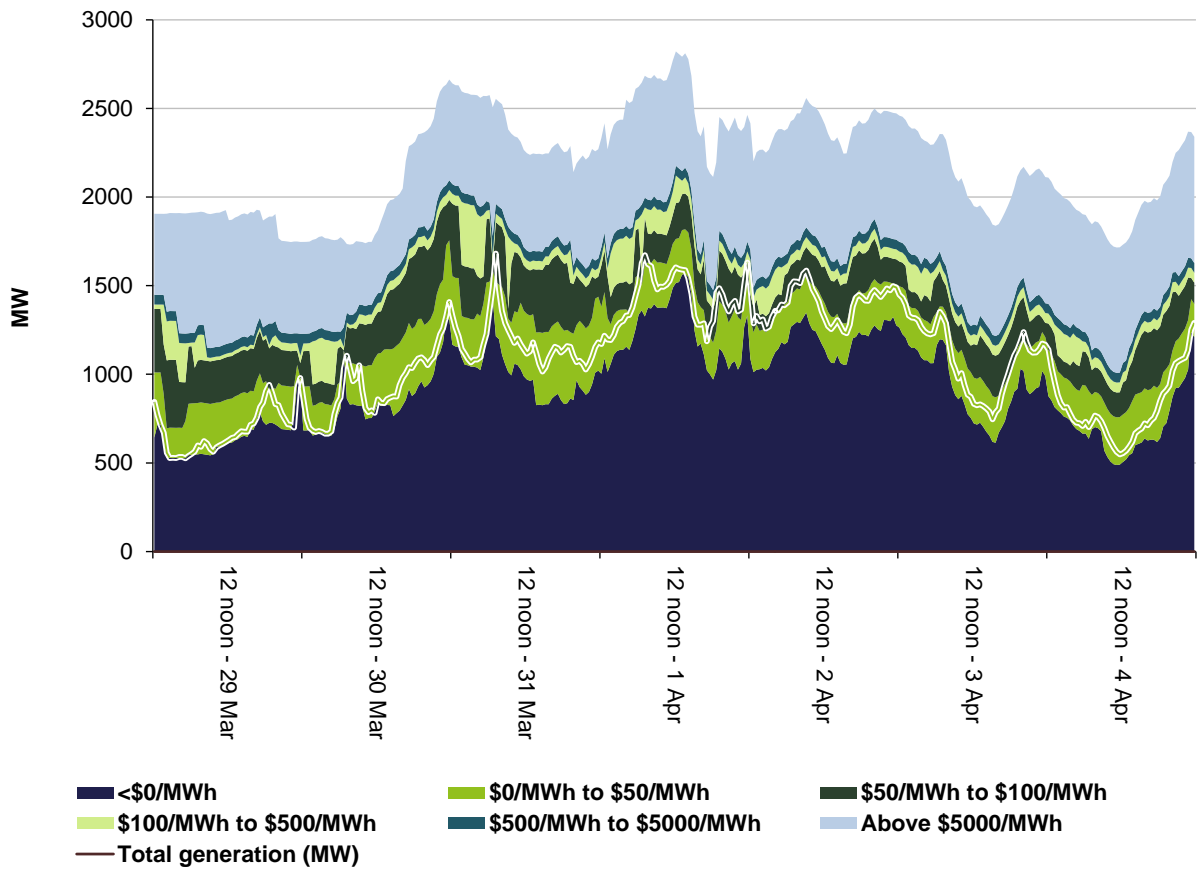
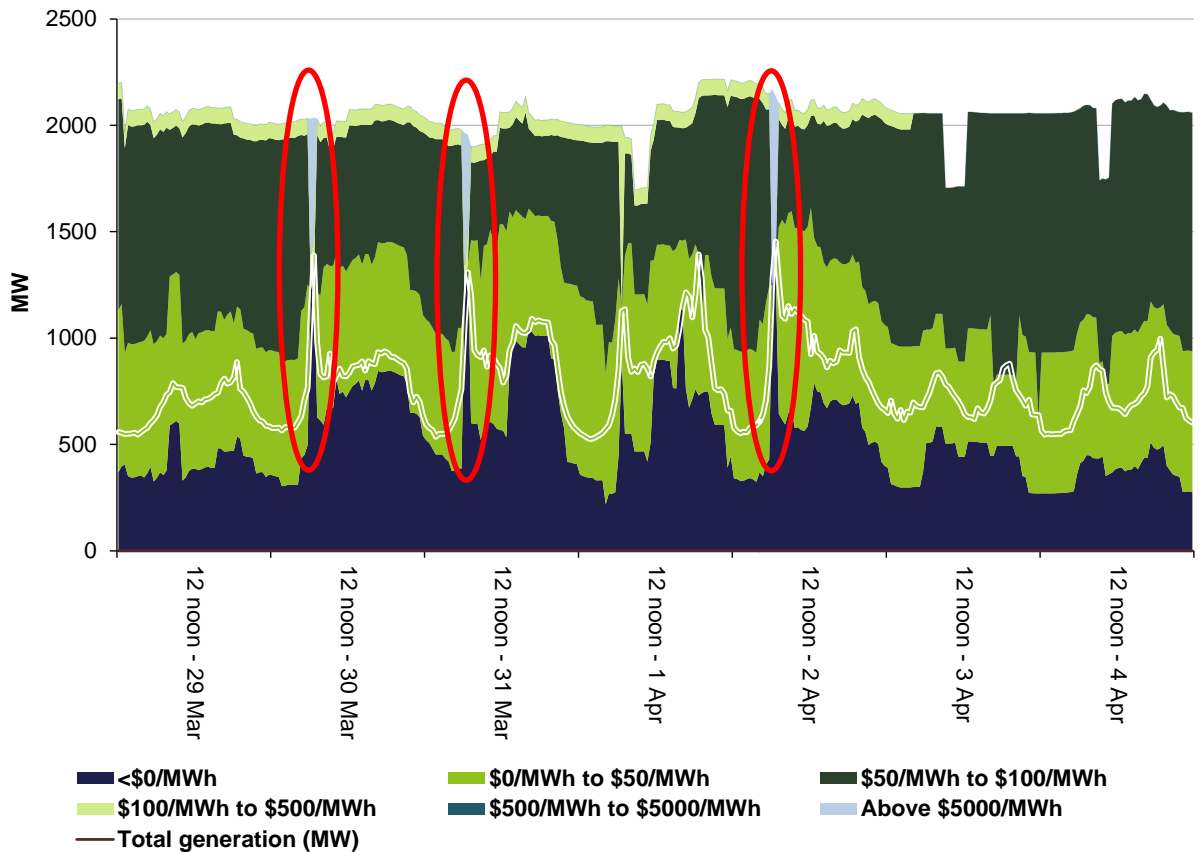


Figure 7: Tasmania generation and bidding patterns



The red ellipses in Figure 7 highlights where Hydro Tasmania offered little or no capacity between priced between zero and \$11 500/MWh. It led to high prices on 2 April which are detailed in the “Detailed market analysis of significant price events” section below

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 \$335 500 or less than 1 per cent of energy turnover on the mainland.

The total cost of FCAS in Tasmania for the week was \$144 000 or 2 per cent of energy turnover in Tasmania.

Figure 8: Daily frequency control ancillary service cost

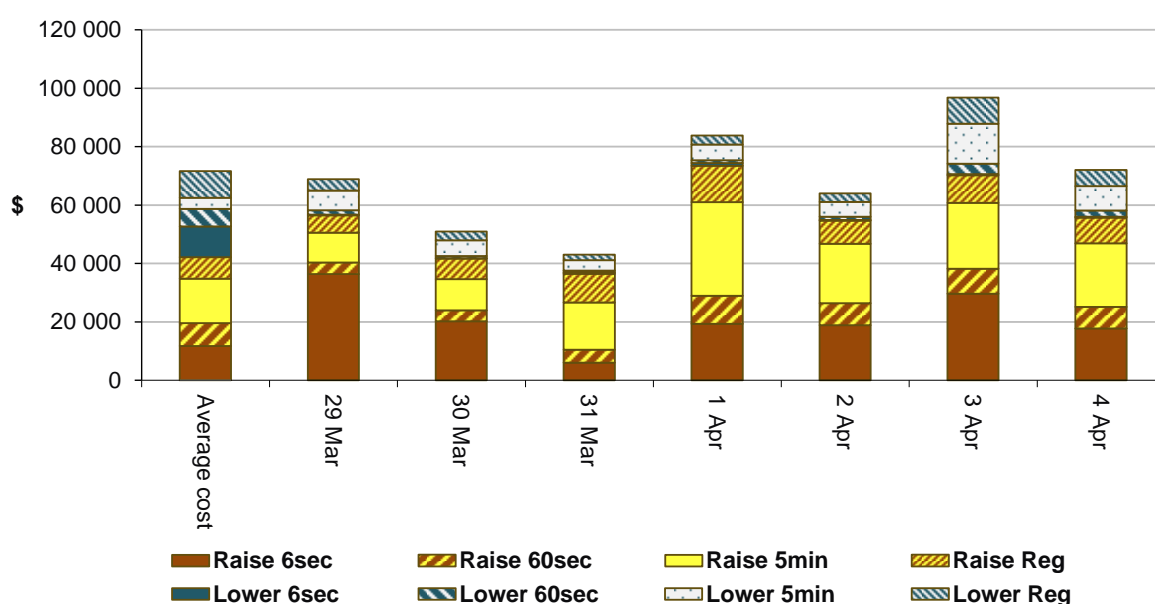


Figure 8 shows the daily breakdown of cost for each FCAS for the NEM, as well as the average cost since the beginning of the previous financial year.

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.

All regions – Monday 30 March

There was one occasion where the spot price in Queensland was greater than three times the Queensland weekly average price of \$33/MWh and above \$250/MWh. During the same trading interval there were high prices in all other regions, however they did not exceed the threshold.

Table 3: 7 am Price, Demand and Availability

Region	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
Queensland	275.21	56.17	53.41	6142	6134	6074	9781	9791	9721
New South Wales	233.68	49.98	49.88	8258	8230	8189	11 634	11 786	11 790
Victoria	212.34	45.35	45.50	5705	5697	5635	9739	9807	9837
South Australia	248.29	57.43	62.87	1540	1500	1542	1777	1746	1762
Tasmania	235.46	43.67	44.05	1254	1247	1257	2037	2009	2160

Across all regions, both availability and actual demand was close to forecast four hours before. For most of the trading interval all interconnectors were unconstrained, meaning prices were almost aligned across the NEM.

Table 4: Rebids for the 7 am trading interval

Submit time	Time effective	Participant	Station	Capacity rebid (MW)	Price from (\$/MWh)	Price to (\$/MWh)	Rebid reason	Region
6.26 am	6.35 am	CS Energy	Callide	30	17	13 500	0642A dispatch price higher than 5min forecast-SL	QLD
6.30 am	6.40 am	AGL Energy	Bayswater, Liddell	790	<296	13 500	0601~A~050 chg in AEMO PD~51 cumulative PD	NSW
6.36 am	6.45 am	Hydro Tasmania	Poatina	29	276	13 498	0635A demand different from forecast: tas	TAS
6.36 am	6.45 am	Origin Energy	Uranquinty	-150	50	N/A	0635A avoid uneconomic start SL	NSW
6.41 am	6.50 am	Energy Australia	Tallawarra, Mt Piper	60	26	>12 835	06:40 a band adj due to nsw price above 30PD 282.95 V	NSW
6.48 am	6.55 am	Millmerran Energy Trader	Millmerran	225	7	13 500	06:48 A price above PD - SL	QLD

Submit time	Time effective	Participant	Station	Capacity rebid (MW)	Price from (\$/MWh)	Price to (\$/MWh)	Rebid reason	Region
6.50 am	7 am	ERM Power	Oakey	300	310	458	0648F avoid uneconomic start::change avail/mw	QLD
6.51 am	7 am	Origin Energy	Uranquinty	-150	50	N/A	0650A avoid uneconomic start SL	NSW
6.53 am	7 am	Callide Power Trading	Callide C	40	19	13 500	0652F price above PD - SL	QLD

At 6.30 am, effective at 6.40 am, AGL Energy rebid 790 MW of capacity at Bayswater and Liddell from prices below \$296/MWh to the price cap. This saw the 6.40 am dispatch price across all regions increase to between \$162/MWh in Victoria and \$301/MWh in Tasmania. Further rebidding saw the 6.45 am dispatch price rise to between \$257/MWh in Victoria and \$310/MWh in Queensland. Prices remained at around this level for the rest of the trading interval except for Queensland at 7 am.

At 7 am both QNI and Terranora interconnectors became constrained, isolating Queensland from the rest of the NEM. Demand increased by over 70 MW which coincided with rebids by ERM Power, Origin and Callide Power Trading becoming effective, resulting in the price increasing from \$319/MWh at 6.55 am to \$458/MWh at 7 am in Queensland.

New South Wales and Queensland – Wednesday 1 April

There were two occasions where the spot price in New South Wales was greater than three times the New South Wales weekly average price of \$35/MWh and above \$250/MWh. There were high prices in Queensland, however they did not exceed the reporting threshold.

Table 5: NSW 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
6:30 AM	254.43	30.67	30.06	7960	7893	7808	10 680	11 195	11 198
7:00 AM	258.35	49.98	35.03	8228	8234	8187	10 741	10 720	11 222

Conditions at the time saw demand close to forecast four hours ahead but available capacity was more than 510 MW lower than forecast four hours ahead for the 6.30 am trading interval.

The QNI and Terranora interconnectors were unconstrained meaning there was price alignment across New South Wales and Queensland. The Victoria-New South Wales interconnector was constrained for most of the 6.30 am trading interval and all of the 7 am trading interval, isolating New South Wales and Queensland from the rest of the NEM.

Table 6: Rebids for the 6.30 am and 7 am trading intervals

Submit time	Time effective	Participant	Station	Capacity rebid (MW)	Price from (\$/MWh)	Price to (\$/MWh)	Rebid reason	Region
5.51 am	6.05 am	Stanwell	Stanwell	130	<288	13 499	0523P dust plant limitations	QLD
5.52 am	6.05 am	CS Energy	Callide	80	17	13 500	0551A inc qld dem 5PD 5981MW>30PD 5740MW @ 0630 SL	QLD

These two rebids saw the 6.05 am dispatch price increase to \$284/MWh in Queensland and \$300/MWh in New South Wales. Rising morning demand across New South Wales and Queensland kept prices close to \$300/MWh throughout most of the two trading intervals.

Tasmania – Thursday 2 April

There was one occasion where the spot price in Tasmania was greater than three times the Tasmania weekly average price of \$40/MWh and above \$250/MWh.

Table 7: 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
6:30 AM	1958.65	28.03	27.95	1153	1106	1118	2171	2097	2077

Demand and available generation were close to forecast four hours ahead.

There was no capacity priced between zero and \$11 600/MWh (which was offered a day ahead) meaning that small changes in demand, availability or network conditions could lead to high prices.

At 6.25 am wind generation fell by 29 MW and demand increased by 22 MW. At the same time, a constraint used to avoid the overload of a Farrell to Sheffield 220 kV line on the loss of the other Farrell to Sheffield 220 kV line bound. This system normal constraint limited the low-priced generation at Reece and Mackintosh.

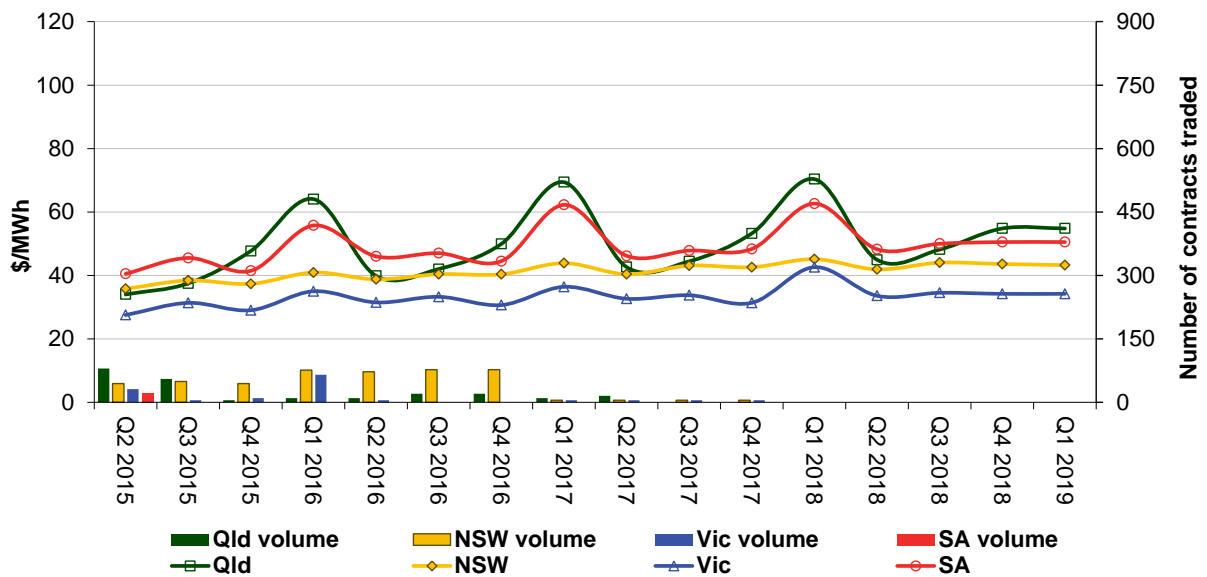
With low priced capacity either ramp rate limited, trapped, stranded or fully dispatched, the dispatch price increased from \$16/MWh at 6.20 am to \$11 678/MWh at 6.25 am. Prices fell to \$24/MWh at 6.30 am coinciding with a fall in demand of 79 MW.

There were no significant rebids.

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

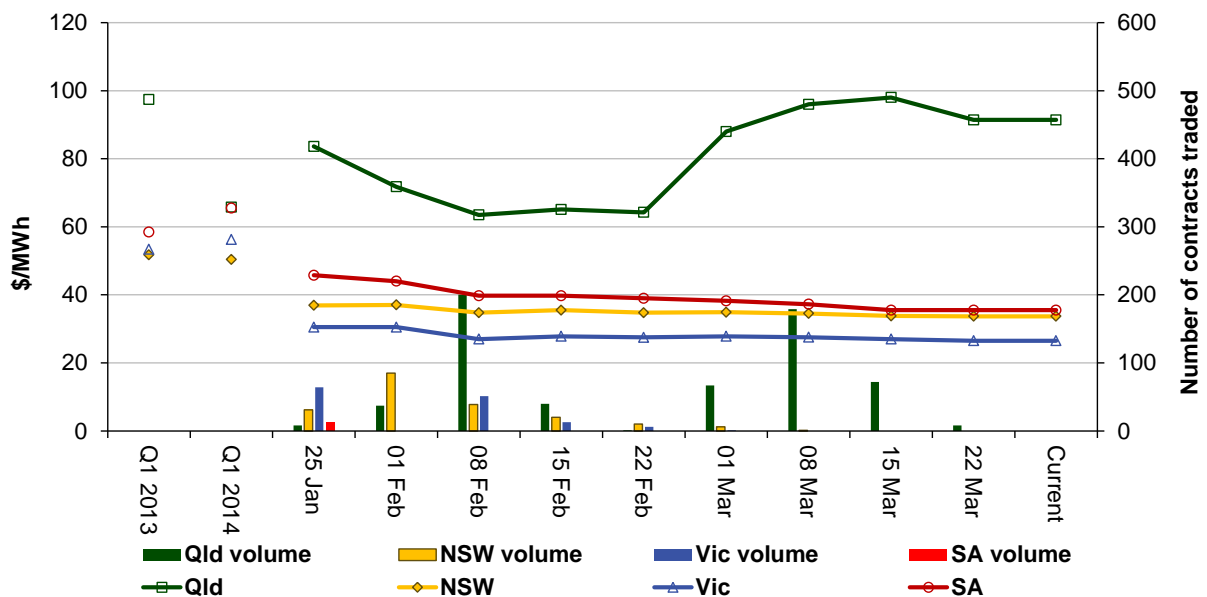


Source: ASXEnergy.com.au

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.

There were only two trading days in the current week that correspond to Quarter 1 and no trades occurred on those days. Consequently, actual base contract prices are shown for each the previous nine weeks and those for the current week have been assumed to be the same as those of the preceding week. Average prices for yearly periods 1 and 2 years prior to the current year are also shown.

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

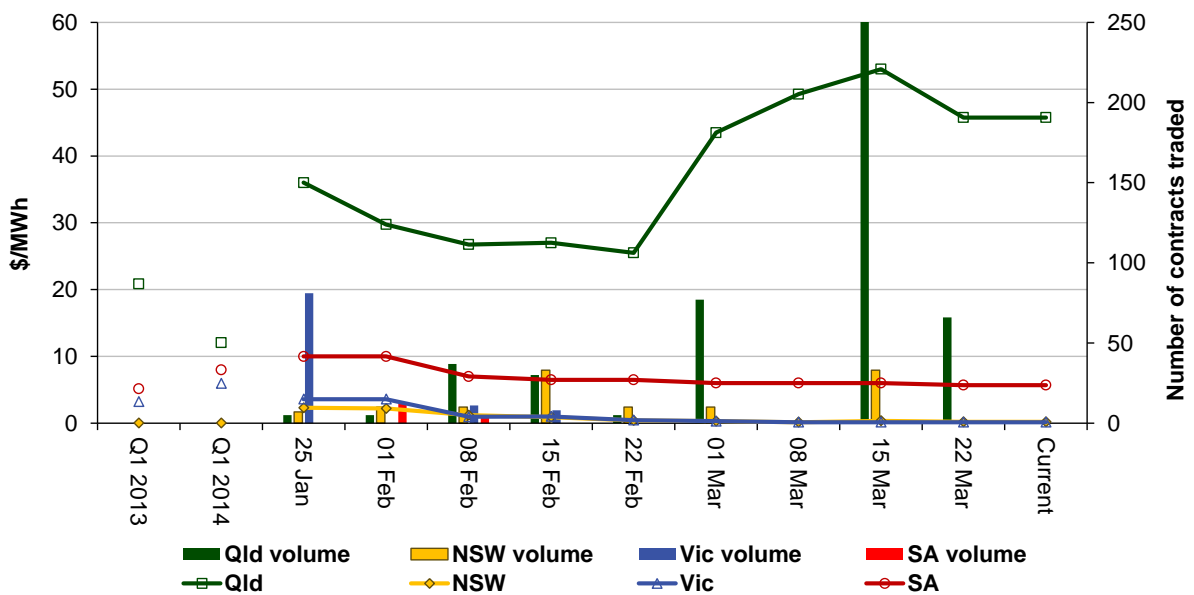


Source: ASXEnergy.com.au

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 2015 cap contract has changed over the last 10 weeks (as well as the total number of trades each week). No trades were recorded on the two days in the current week that relate to the first quarter. Rather than showing zero prices we have assumed that the prices were the same as for the previous 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

April 2015