

27 March – 2 April 2016

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 27 March to 2 April 2016. There was one occasion where the spot price in Queensland was greater than three times the Queensland weekly average price of \$42/MWh and above \$250/MWh. There was one occasion where the spot price in Victoria was below -\$100/MWh. There was one occasion where the spot price in South Australia was greater than three times the South Australian weekly average price of \$42/MWh and above \$250/MWh.

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

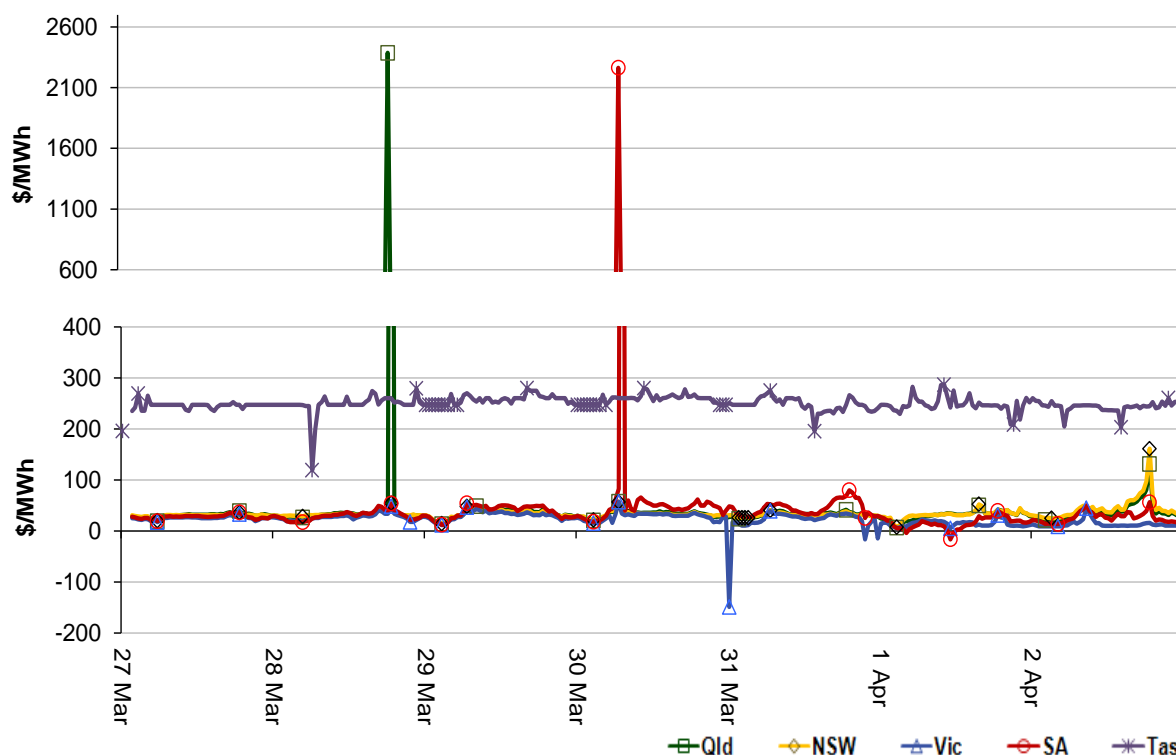


Figure 2 shows the volume weighted average (VWA) prices for the current week (with prices shown in Table 1) and the preceding 12 weeks, as well as the VWA price over the previous 3 financial years.

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

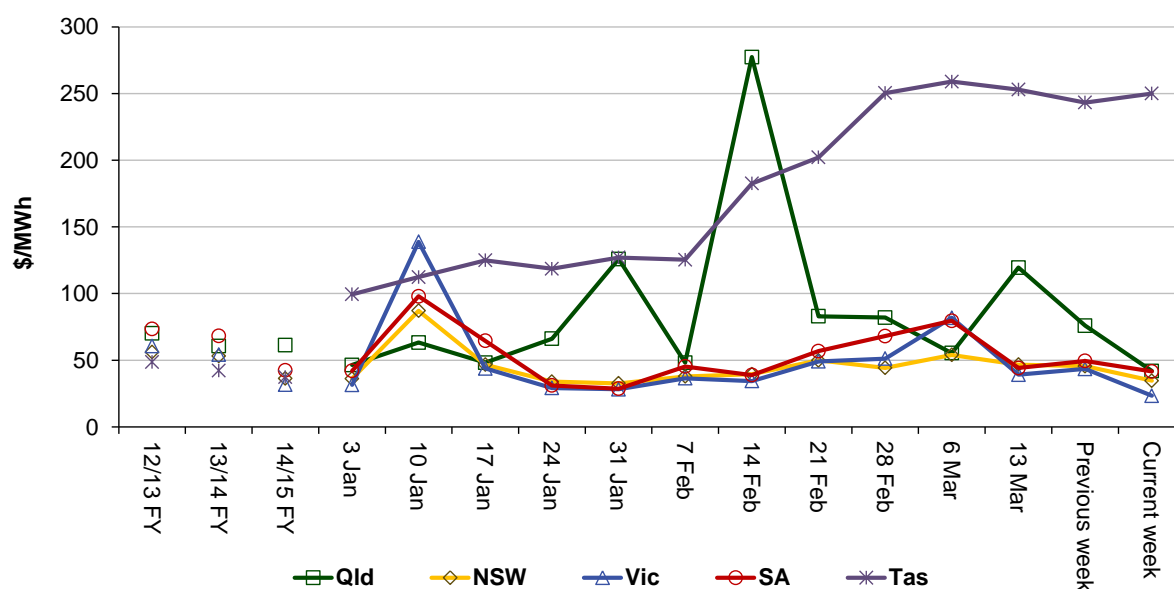


Table 1: Volume weighted average spot prices by region (\$/MWh)

Region	Qld	NSW	Vic	SA	Tas
Current week	42	35	23	42	250
14-15 financial YTD	70	36	31	40	39
15-16 financial YTD	60	46	44	61	93

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 75 trading intervals throughout the week where actual prices varied significantly from forecasts. This compares to the weekly average in 2015 of 133 counts and the average in 2014 of 71. 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

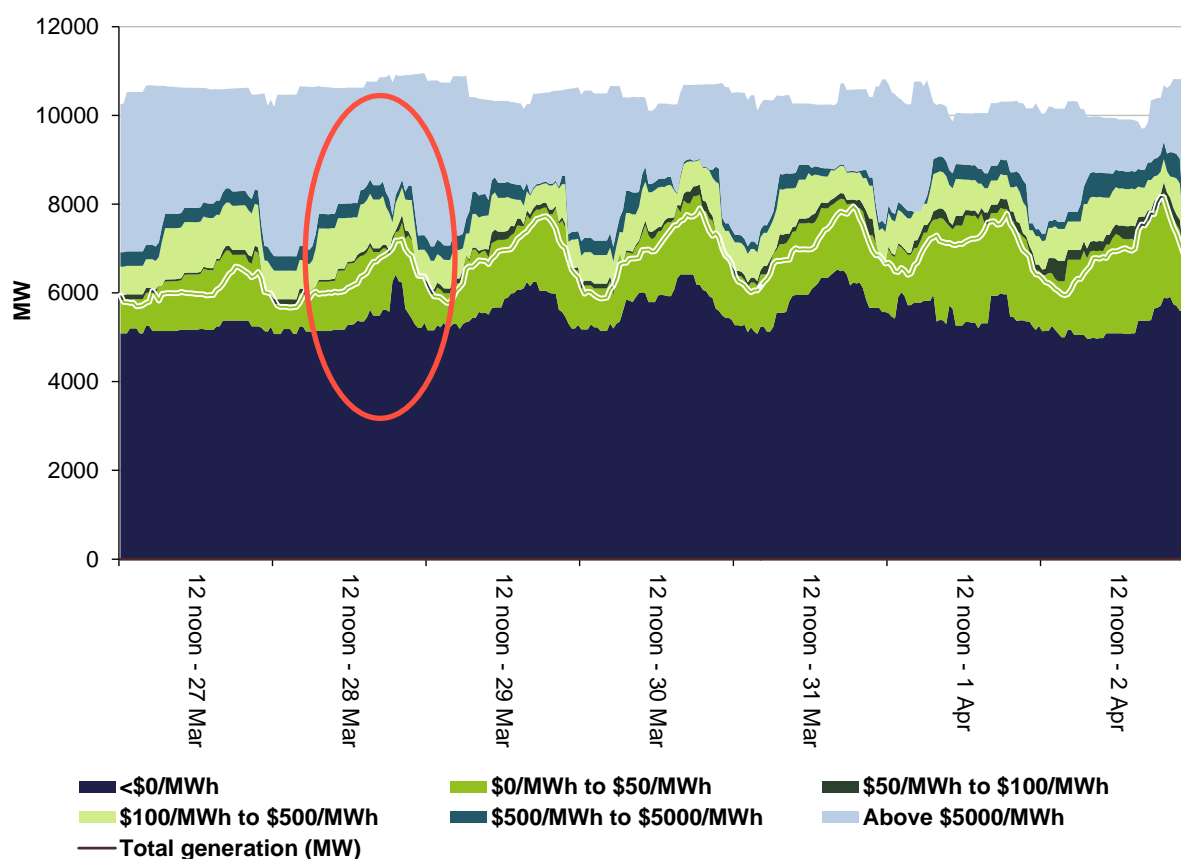
	Availability	Demand	Network	Combination
% of total above forecast	9	30	0	0
% of total below forecast	15	25	0	21

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 ellipse in Figure 3 highlights rebidding that resulted in high prices detailed in “Detailed market analysis of significant price events”

Figure 4: New South Wales generation and bidding patterns

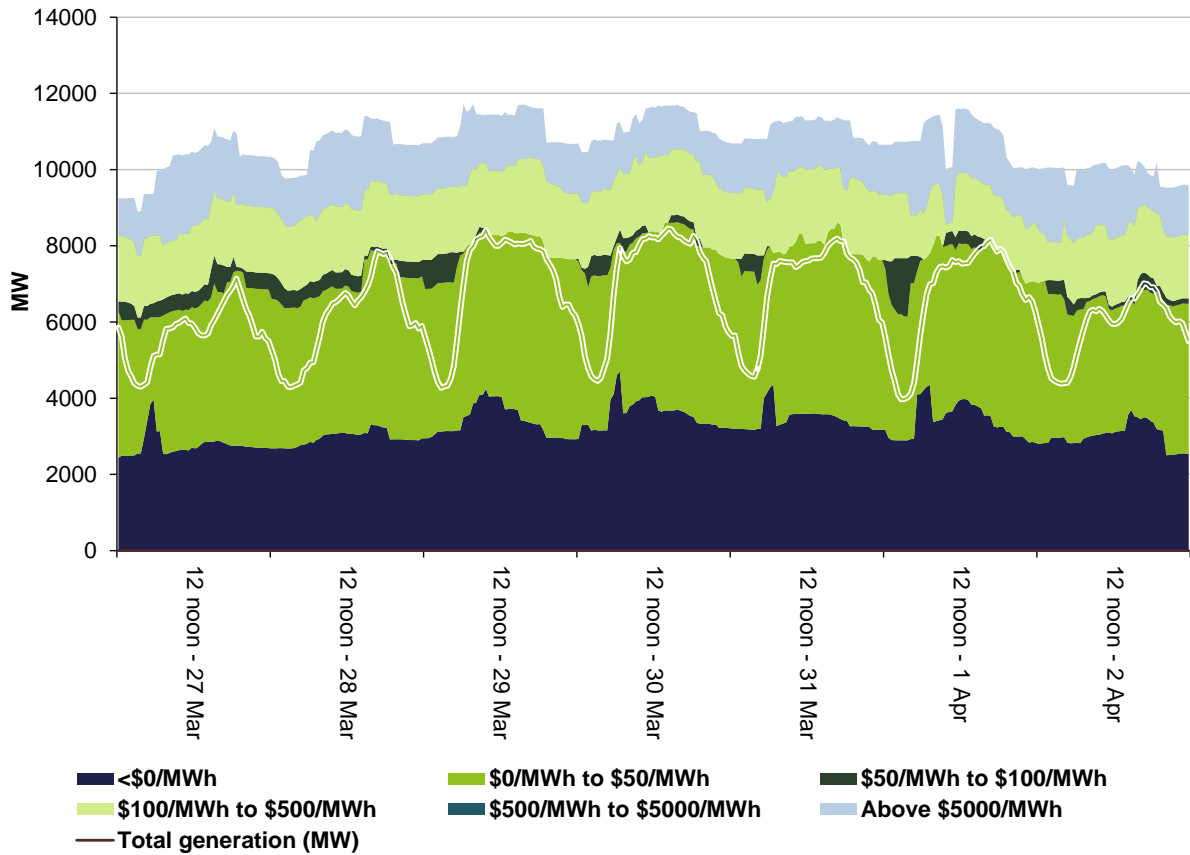
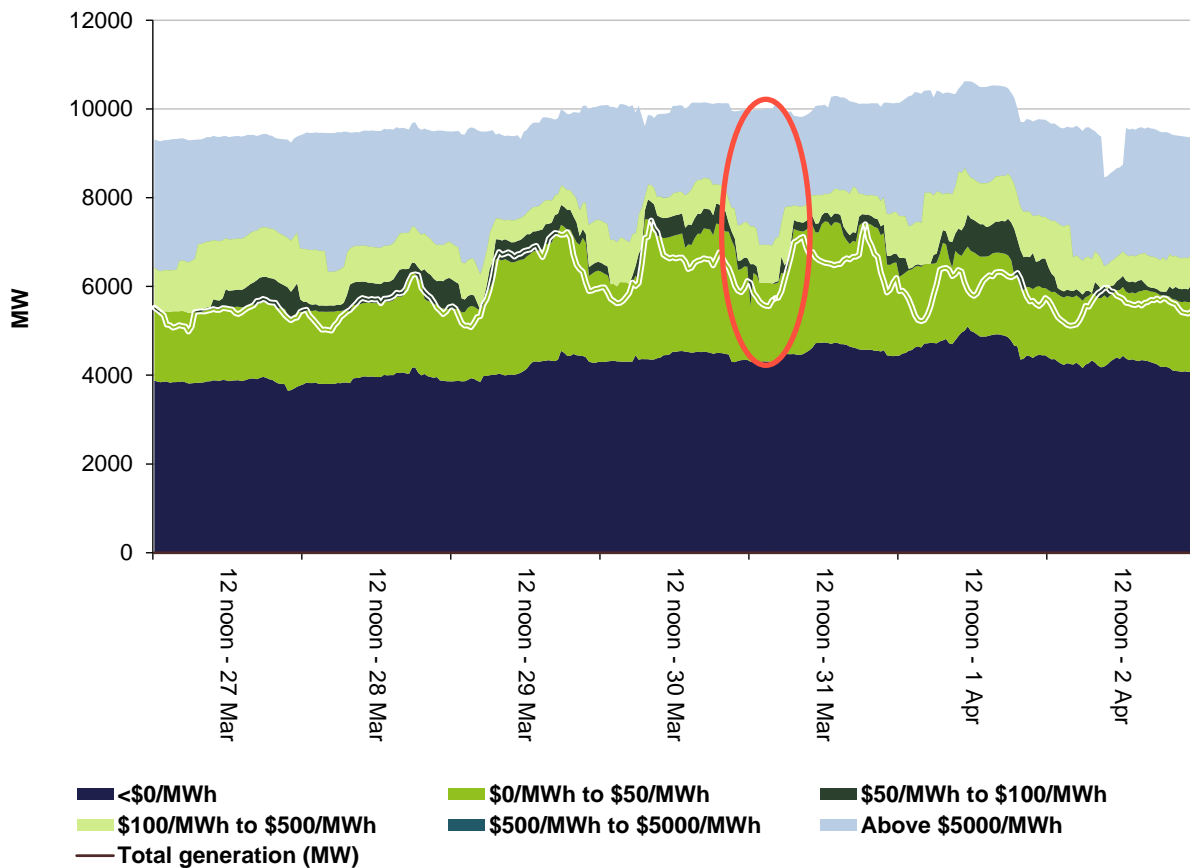
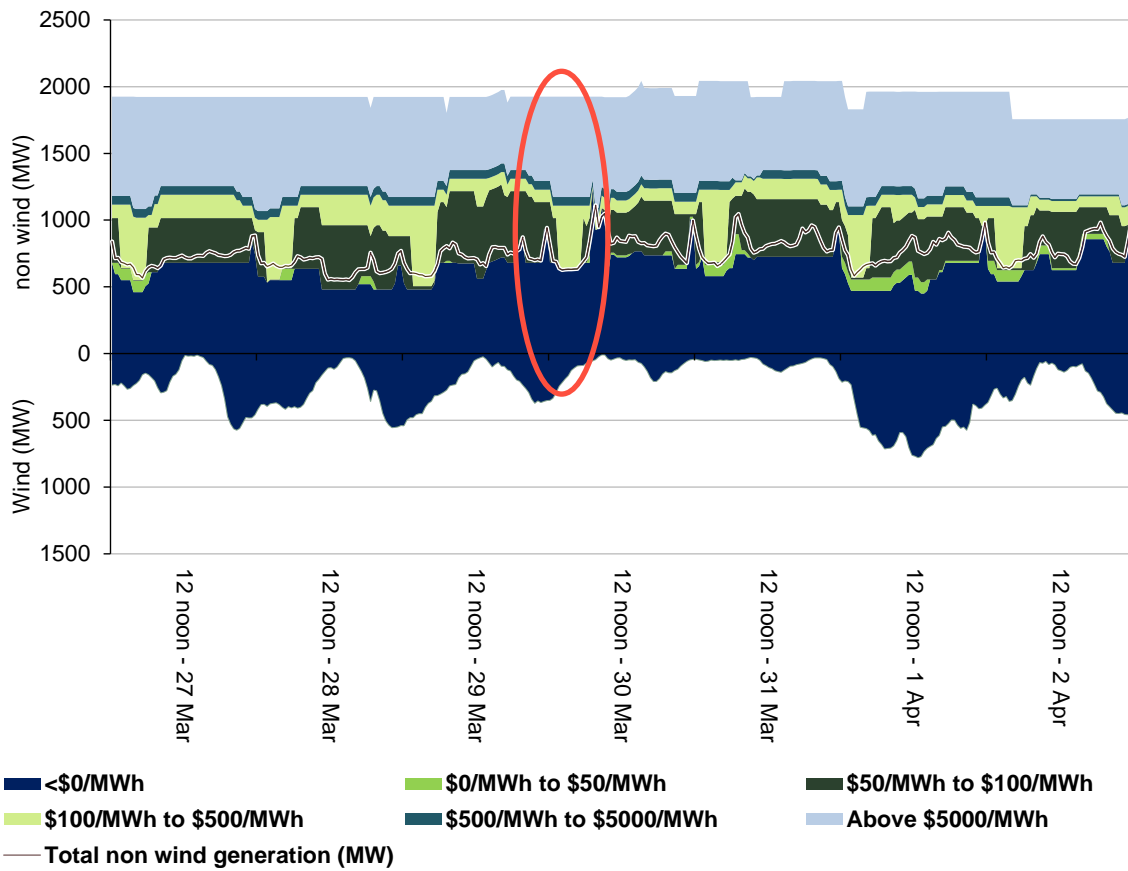


Figure 5: Victoria generation and bidding patterns



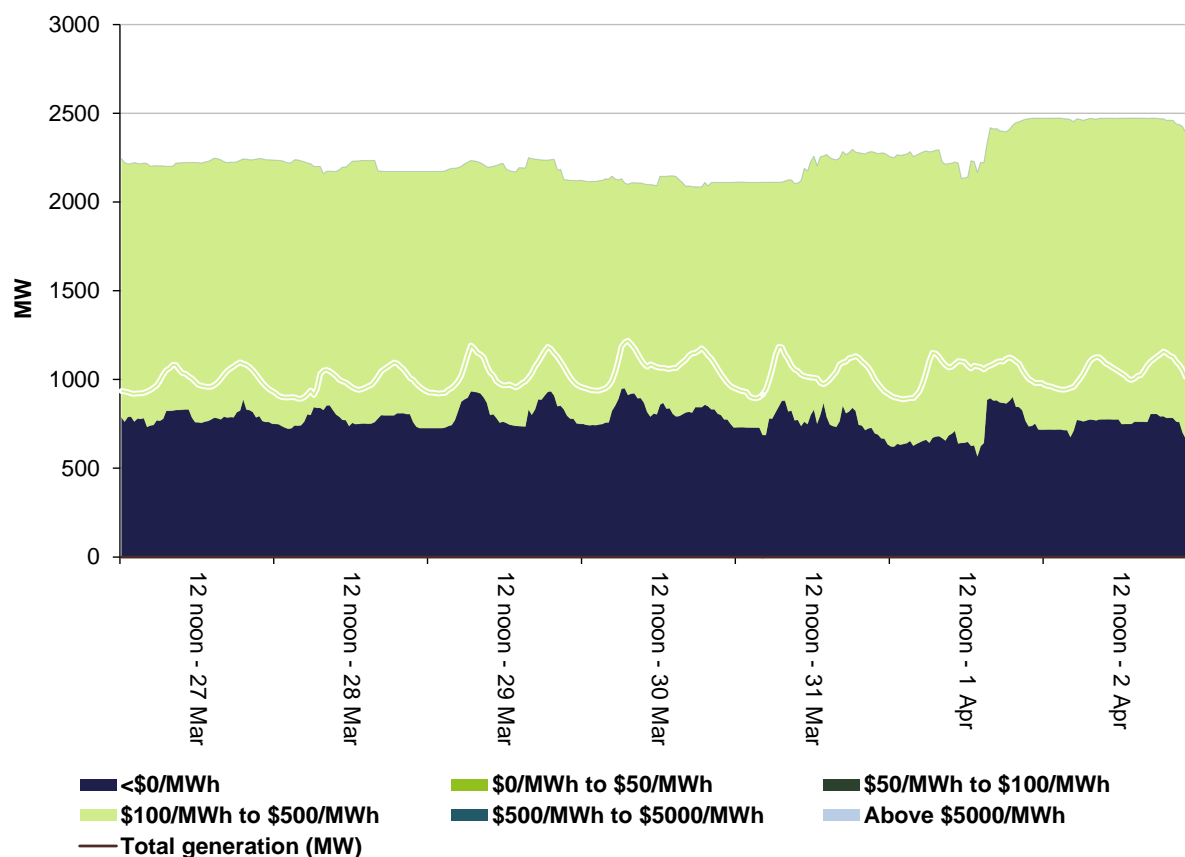
The red ellipse in Figure 5 highlights the period during the week where the price spot was below $-\$100/\text{MWh}$. This event is covered in detail in “Detailed market analysis of significant price events”

Figure 6: South Australia generation and bidding patterns



The red ellipse in Figure 6 highlights the period during the week where the spot price was high. This event is covered in detail in “Detailed market analysis of significant price events”

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.

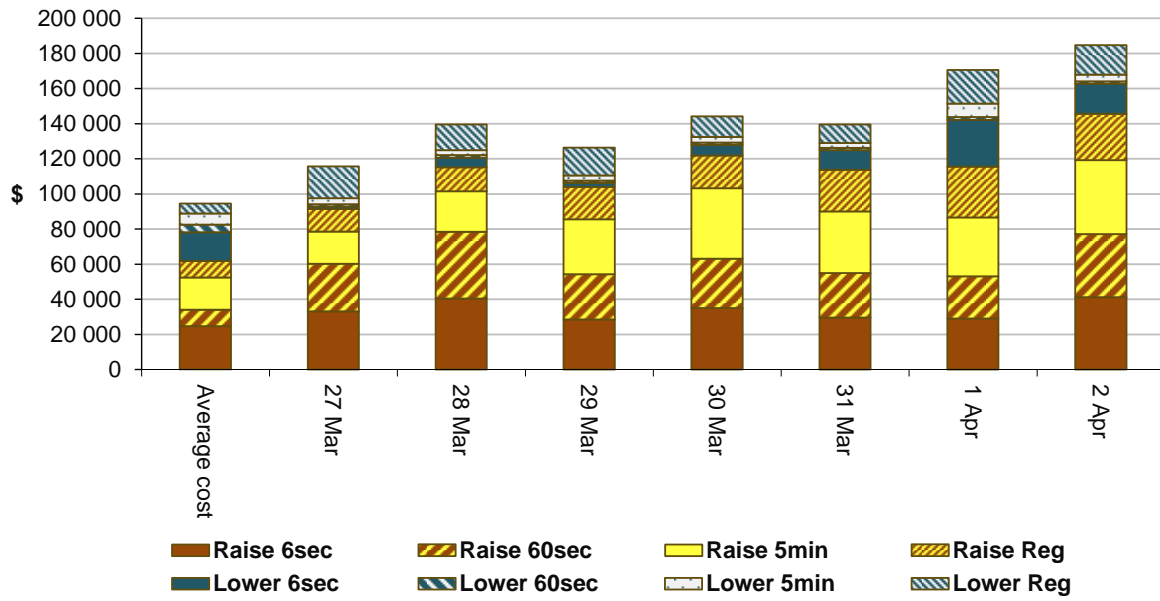
The Electricity Rules stipulate that generators pay for raise contingency services and customers pay for lower contingency services. Regulation services are paid for on a “causer pays” basis determined every four weeks by AEMO.

The total cost of FCAS on the mainland for the week was \$860 500 or less than 1 per cent of energy turnover on the mainland.

The total cost of FCAS in Tasmania for the week was \$160 000 or less than 0.5 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 was one occasion where the spot price in Queensland was greater than three times the Queensland weekly average price of \$42/MWh and above \$250/MWh.

Monday, 28 March

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
7:00 pm	2386.06	60.42	49.50	7179	7058	7172	10 884	10 777	10 617

Conditions at the time saw demand up to 121 MW greater than that forecast four hours ahead and availability 104 MW greater than forecast four hours ahead.

Network constraints affecting both QNI and the Terranora interconnector limited flows into Queensland by around 150 MW more than was initially forecast for the trading interval.

Table 4: Rebids for the 7 pm trading interval

Submitted time	Time effective	Participant	Station	Capacity rebid (MW)	Price from (\$/MWh)	Price to (\$/MWh)	Rebid reason
4.39 pm		CS Energy	Gladstone	150	<50	13800	1638P PORTFOLIO REARRANGEMENT DUE TO-KOGAN MILL RTS-EXTENDED-SL
6.19 pm		Millmerran Energy Trader	Millmerran	145	7	13800	18:19 A A 87MW CHANGE Q P5M DISPGEN DI 1845 RUN 1815/1810
6.21 pm		Callide Power Trading	Callide C	106	-1000	13800	1820A A 87MW CHANGE Q P5M DISPGEN DI 1845 RUN 1815/1810
6.38 pm	6.45 pm	Callide Power Trading	Callide C	120	-1000	13800	1837A RRP ABOVE 5MIN POD FOR DI 1840
6.42 pm	6.50 pm	Millmerran Energy Trader	Millmerran	60	7	13800	18:41 A DEMAND HIGHER THAN 5MIN PD FOR DI 1845
6.47 pm	6.55 pm	CS Energy	Gladstone	350	<300	13800	1845A INTERCONNECTOR CLOSE TO CONSTRAINT-SL

Submitted time	Time effective	Participant	Station	Capacity rebid (MW)	Price from (\$/MWh)	Price to (\$/MWh)	Rebid reason
6.47 pm	6.55 pm	Stanwell Corporation	Tarong	105	<61	13800	1845A CHANGE QLD PRICE 5 MIN PD 1840 V 1845
6.47 pm	6.55 pm	CS Energy	Callide B	120	17	13800	1845A INTERCONNECTOR CLOSE TO CONSTRAINT- SL

The Queensland dispatch price increased from \$61/MWh at 6.50 am to \$13 800/MWh at 6.55 am, following a significant amount of capacity being rebid from low to high prices (as detailed above). There was also a 40 MW increase in demand at the time.

The dispatch price reduced to \$34/MWh at 7 pm following a number of participants rebidding of capacity from high to low prices and a 437 MW decrease in demand.

South Australia

There was one occasion where the spot price in South Australia was greater than three times the South Australia weekly average price of \$42/MWh and above \$250/MWh.

Wednesday, 30 March

Table 5: 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
7:30 am	2263.49	79.99	79.99	1643	1630	1591	1980	1990	1984

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

At the start of the trading interval, ramping constraints were invoked in preparation for the commencement of a planned outage of the Keith to Tailem Bend line. These ramping constraints reduced flows into South Australia across the Heywood interconnector (from 505 MW at 6.55 am to 442 MW at 7.15 am).

Furthermore, at 7.03 am, effective from 7.10 am, Alinta Energy rebid 155 MW of capacity at Northern which was priced at the price floor to prices above \$13,329/MWh. The reason given was "0700~A~DISPATCH \$57.53 V 30PD \$79.99~". With low priced generation either fully dispatched, stranded or unable to start in time, the limited imports, combined with this rebid saw the South Australian dispatch price increased from \$59/MWh at 7.15 am to \$13 329/MWh at 7.20 am.

The price then dropped to \$41/MWh at 7.25 am, following rebidding of around 670 MW of available capacity into low price bands by local generators

Victoria

There was one occasion where the spot price in Victoria was below -\$100/MWh.

Thursday, 31 March

Table 6: 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
12:30 am	-148.73	26.21	21.66	4696	4706	4695	9941	10 141	10 180

Conditions at the time saw demand close to forecast four hours ahead and availability 200 MW less than forecast four hours ahead.

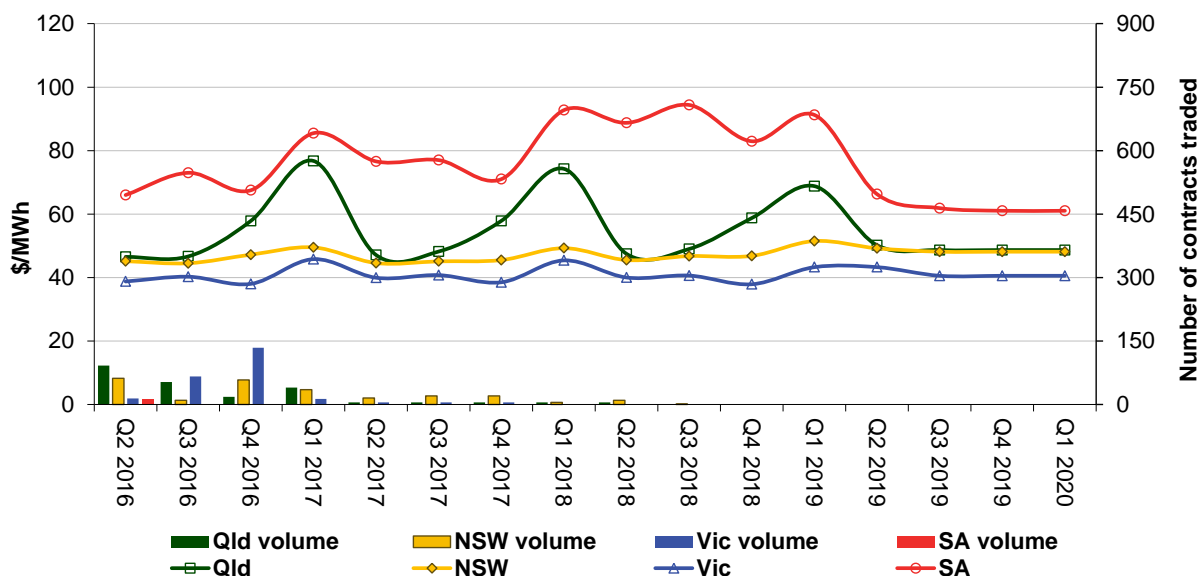
At 12.15 am, Victorian demand decreased by around 80 MW and a constraint to prevent transient instability for the loss of Hazelwood to South Morang line reduced flows into New South Wales across the Victoria to New South Wales interconnector by around 80 MW (from 525 MW to 441 MW). This reduction in interconnector flow and demand led to 16 units in Victoria being ramp down at their limits, resulting in the Victorian dispatch price decreasing from \$28/MWh at 12.10 am to \$-1000/MWh at 12.15 am.

The dispatch price increased to \$11/MWh at 12.20 am, when a number of units were no longer ramp rate limited, there was around 50 MW decrease in wind generation and a marginal increase in flows into New South Wales across the Victoria to New South Wales interconnector.

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. No trades were recorded for the week for base Q1 contracts probably due to the proximity of the end of the quarter.

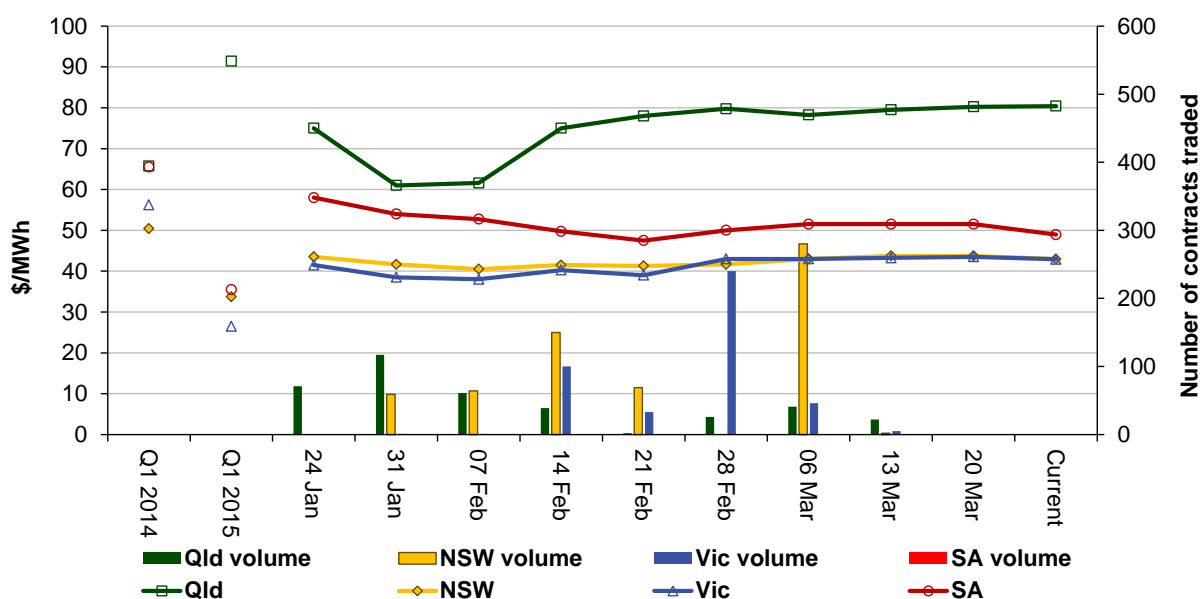
Figure 9: Quarterly base future prices Q1 2016 – Q4 2019



Source: ASXEnergy.com.au

Figure 10 shows how the price for each regional Quarter 1 2016 base contract has changed over the last 10 weeks (as well as the total number of trades each week). The closing quarter 1 2014 and quarter 1 2015 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 2016 base contracts over the past 10 weeks (and the past 2 years)



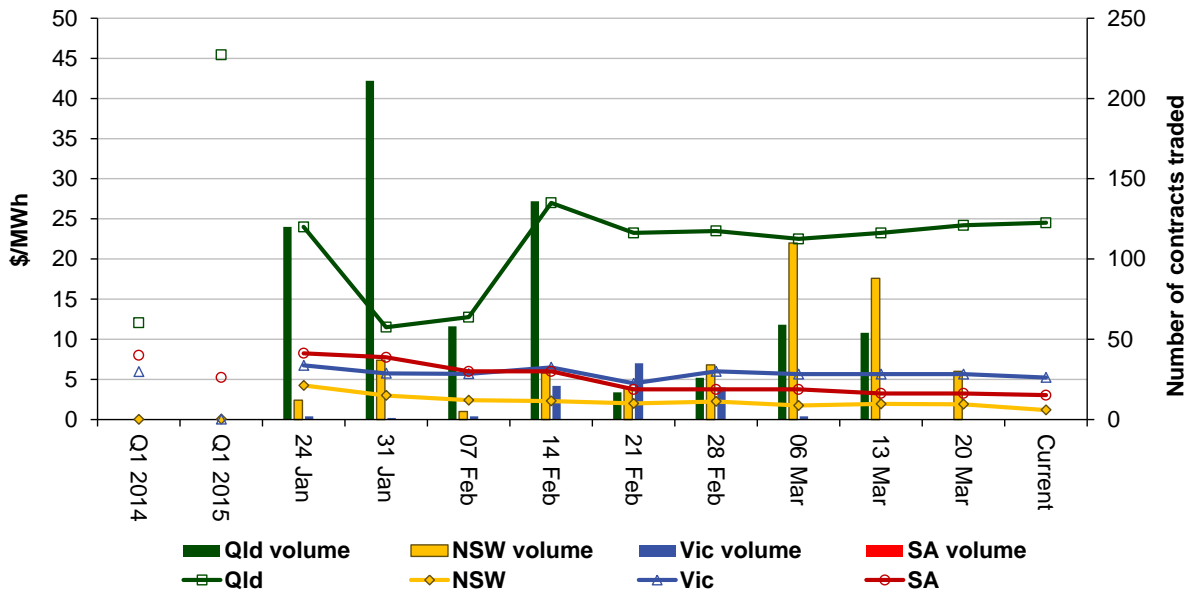
Note. Base contract prices are shown for each of the current week and the previous 9 weeks, with average prices shown for periods 1 and 2 years prior to the current year.

Source: ASXEnergy.com.au

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

Figure 11 shows how the price for each regional Quarter 1 2016 cap contract has changed over the last 10 weeks (as well as the total number of trades each week). The closing quarter 1 2014 and quarter 1 2015 prices are also shown.

Figure 11: Price of Q1 2016 cap contracts over the past 10 weeks (and the past 2 years)



Source. ASXEnergy.com.au

Australian Energy Regulator
April 2016