

Electricity Report 15 – 21 March 2015



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 15 to 21 March 2015. There were five occasions during the week where the spot price in Queensland was above \$1800/MWh, as discussed in the *Detailed market analysis of significant price events* section.

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

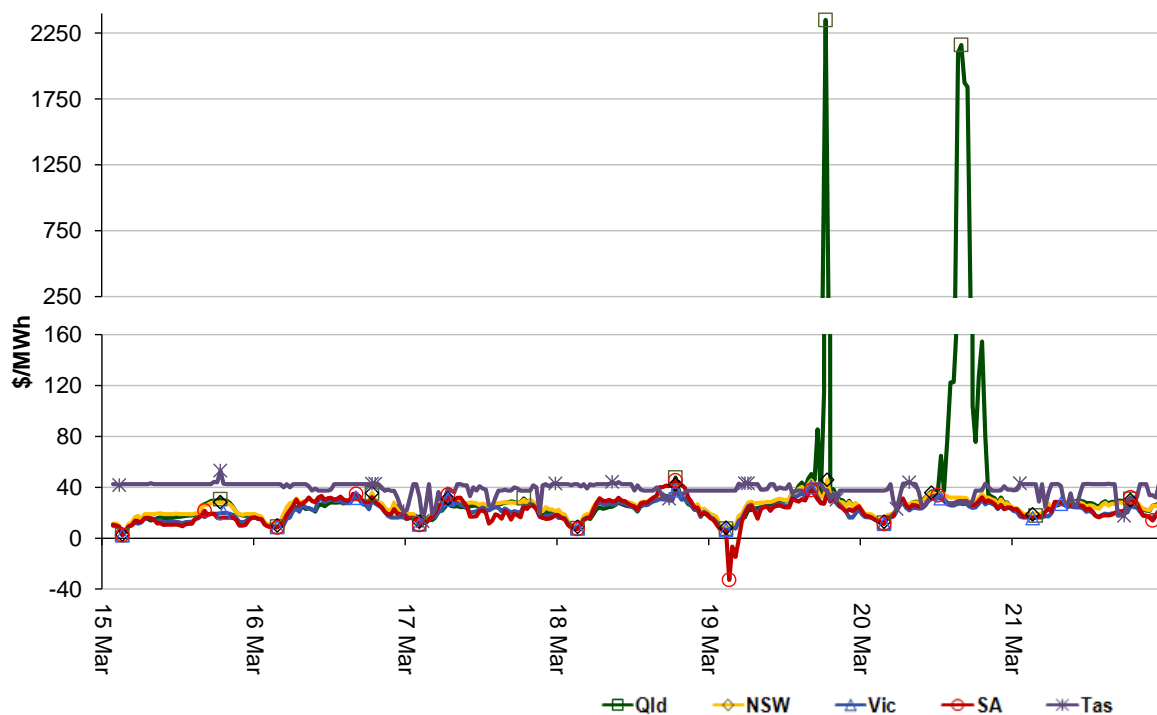


Figure 2 shows the volume weighted average (VWA) prices for the current week (with prices shown in Table 1) and the preceding 12 weeks, as well as the VWA price over the previous 3 financial years.

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

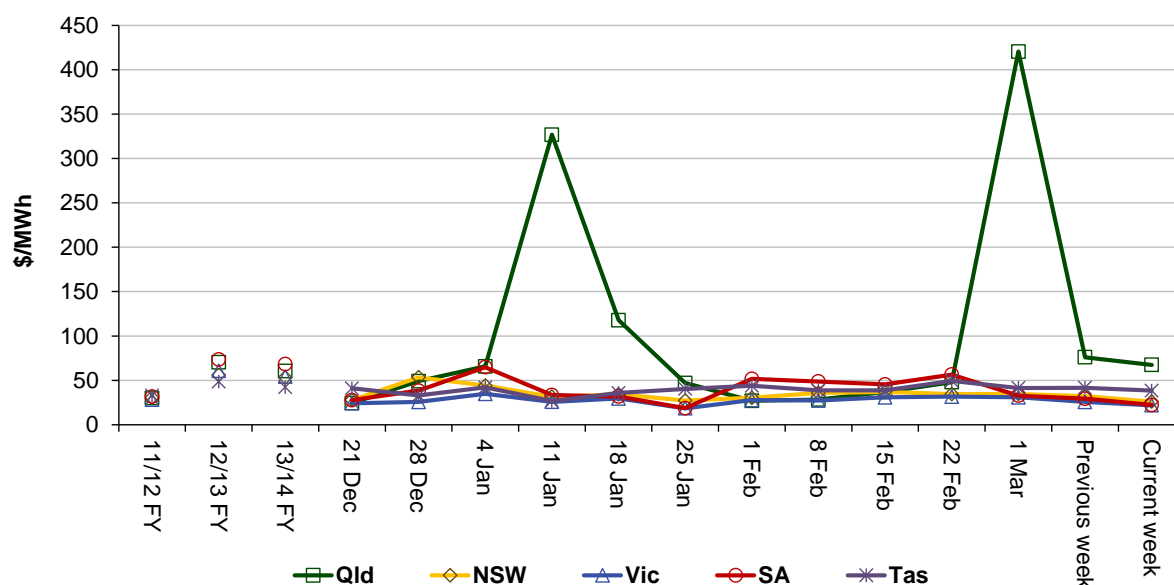


Table 1 : Volume weighted average spot prices by region (\$/MWh)

Region	Qld	NSW	Vic	SA	Tas
Current week	67	26	22	22	38
13-14 financial YTD	61	53	54	68	42
14-15 financial YTD	72	36	31	40	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 126 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

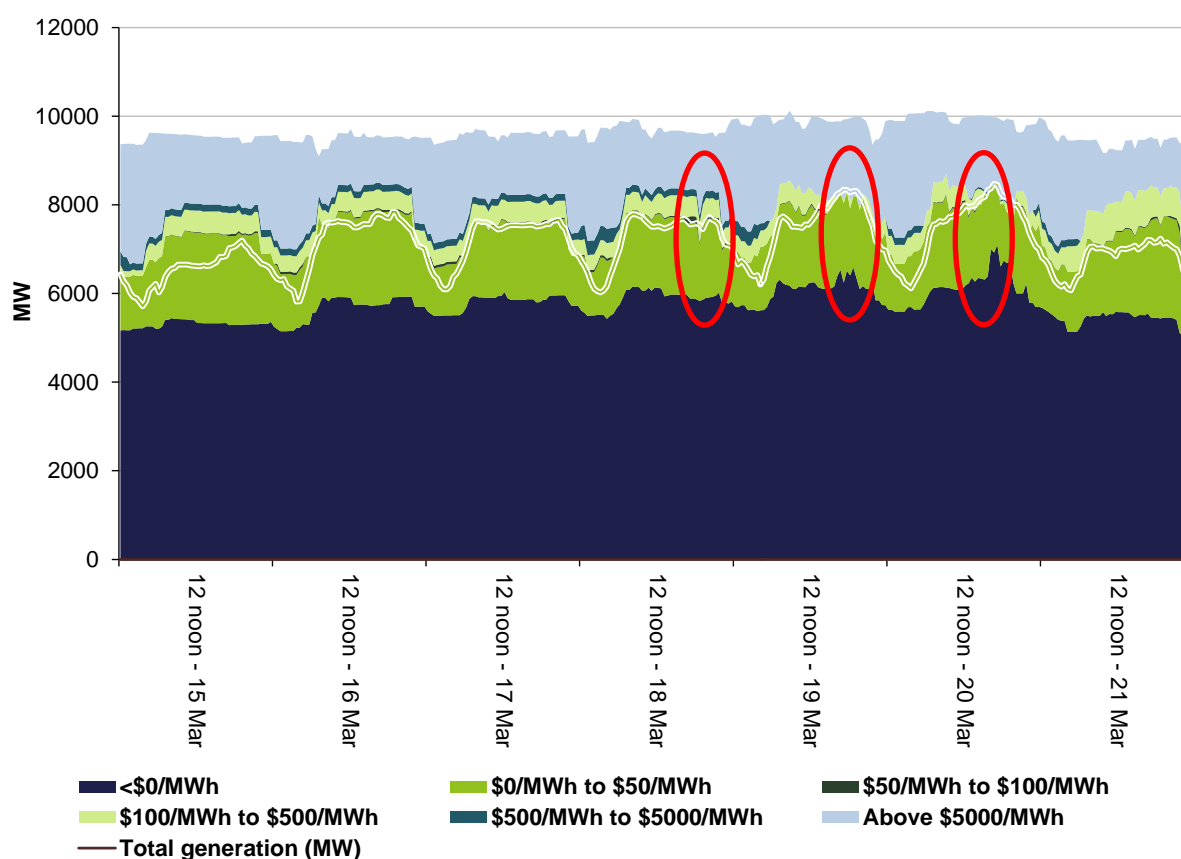
	Availability	Demand	Network	Combination
% of total above forecast	0	39	0	2
% of total below forecast	55	3	0	1

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 three red ellipses on Figure 3 highlight periods during which material volumes were rebid by participants from low priced bands into high priced bands. The rebidding on 18 March did not result in significant increases in price over that forecast while those on 19 and 20 March materially increased the spot price and are discussed later in this report.

Figure 4 : New South Wales generation and bidding patterns

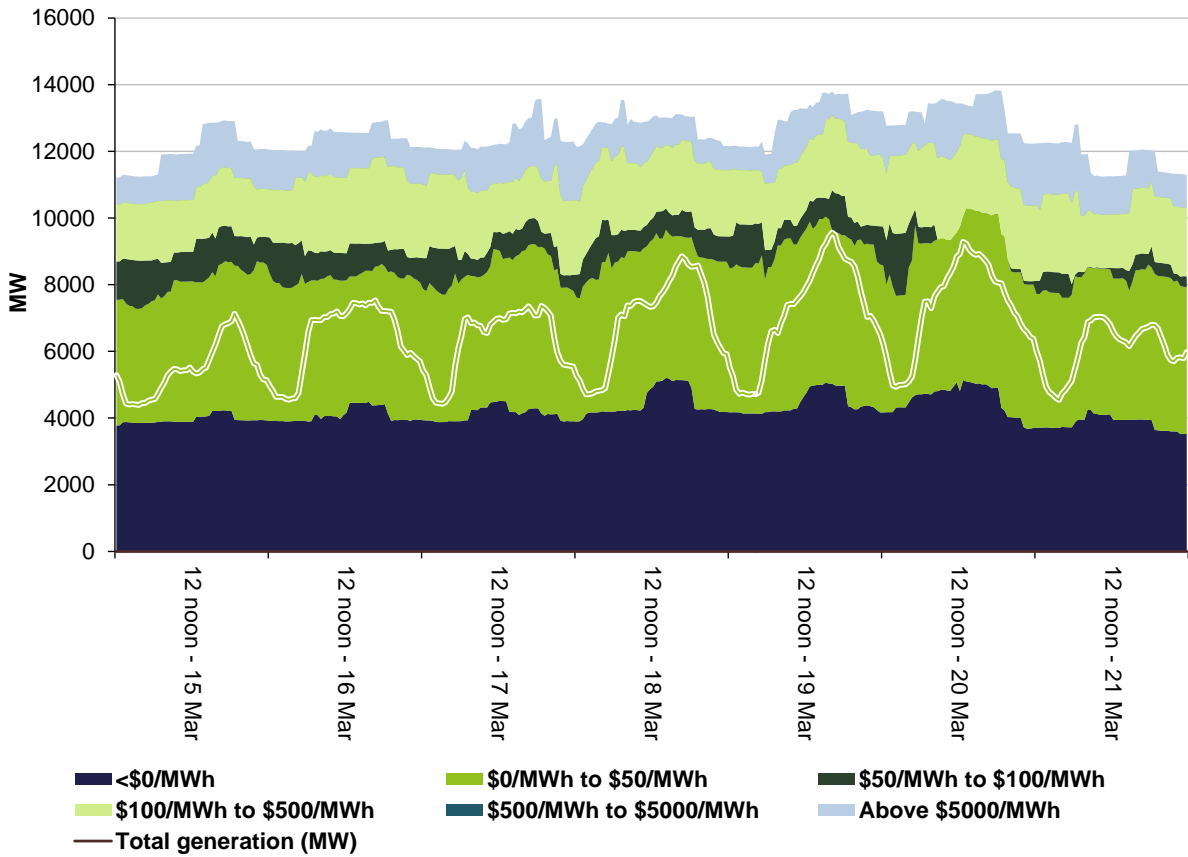


Figure 5 : Victoria generation and bidding patterns

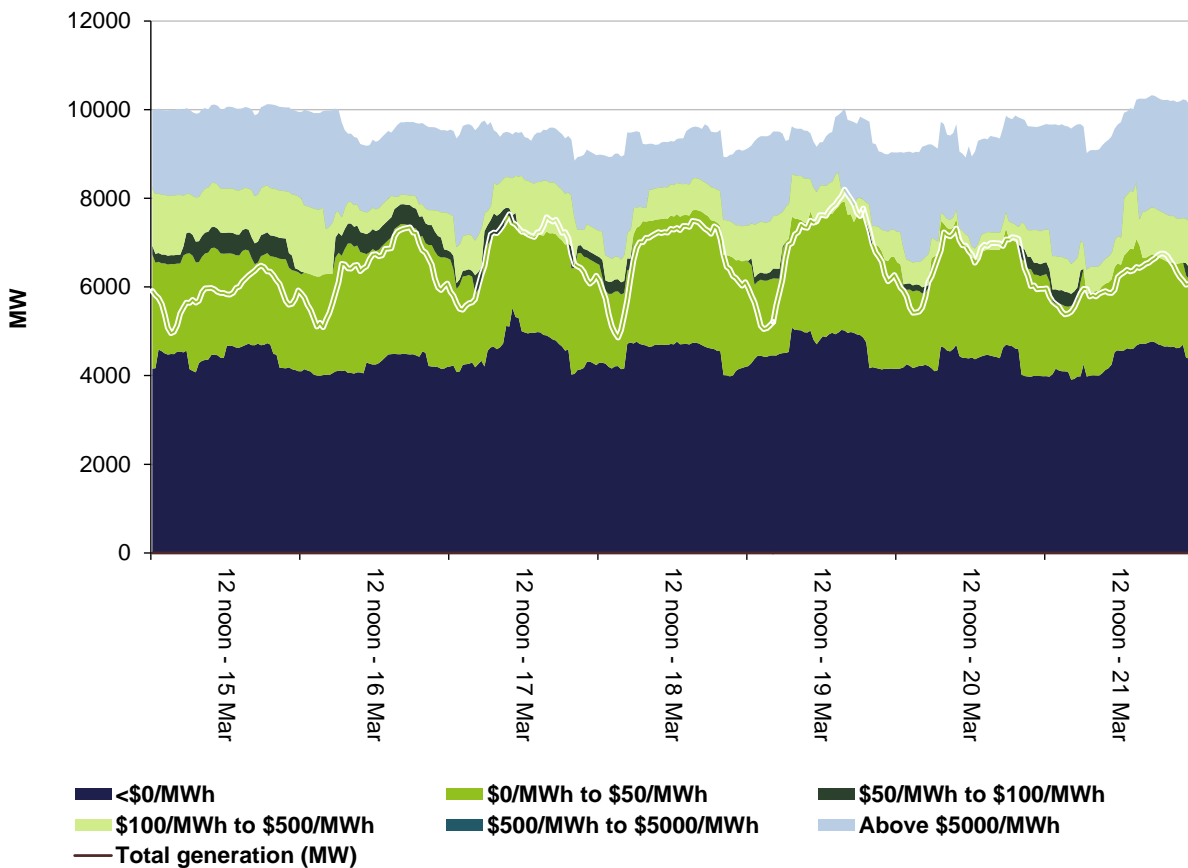


Figure 6: South Australia generation and bidding patterns

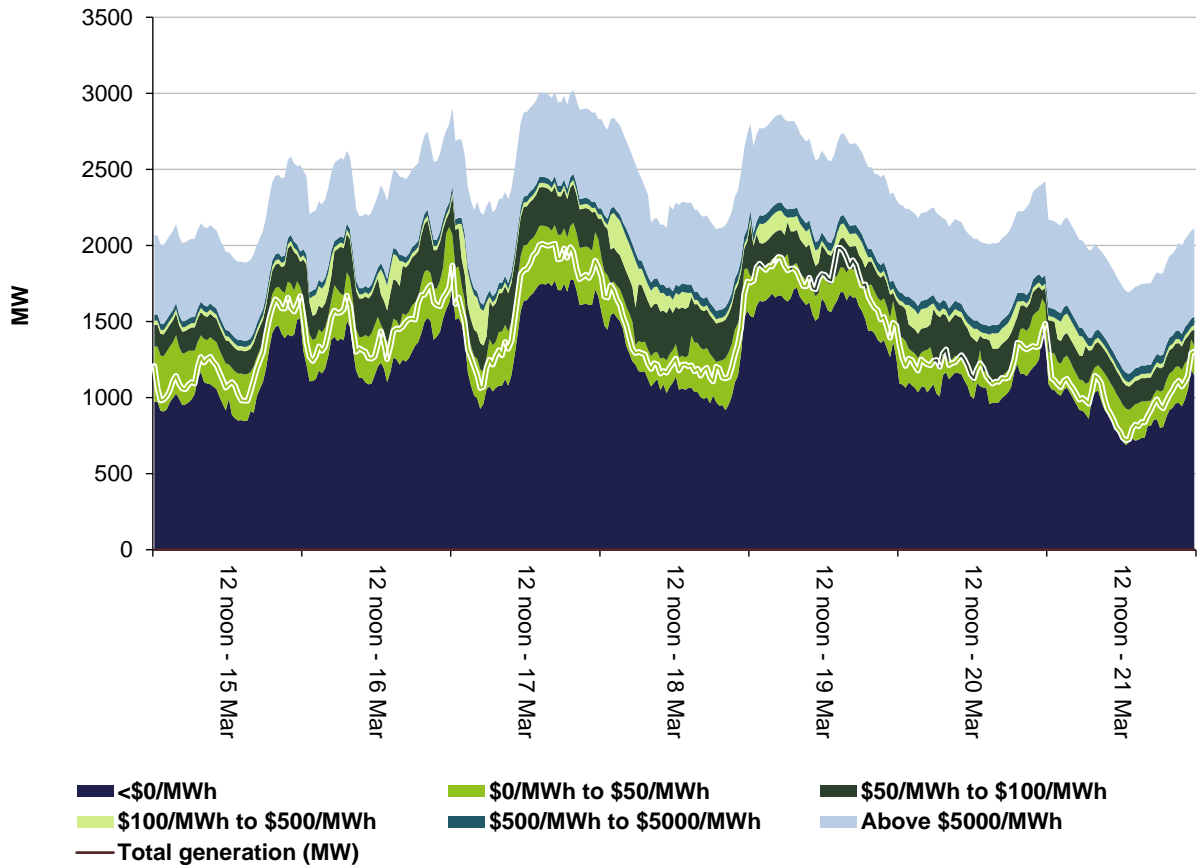
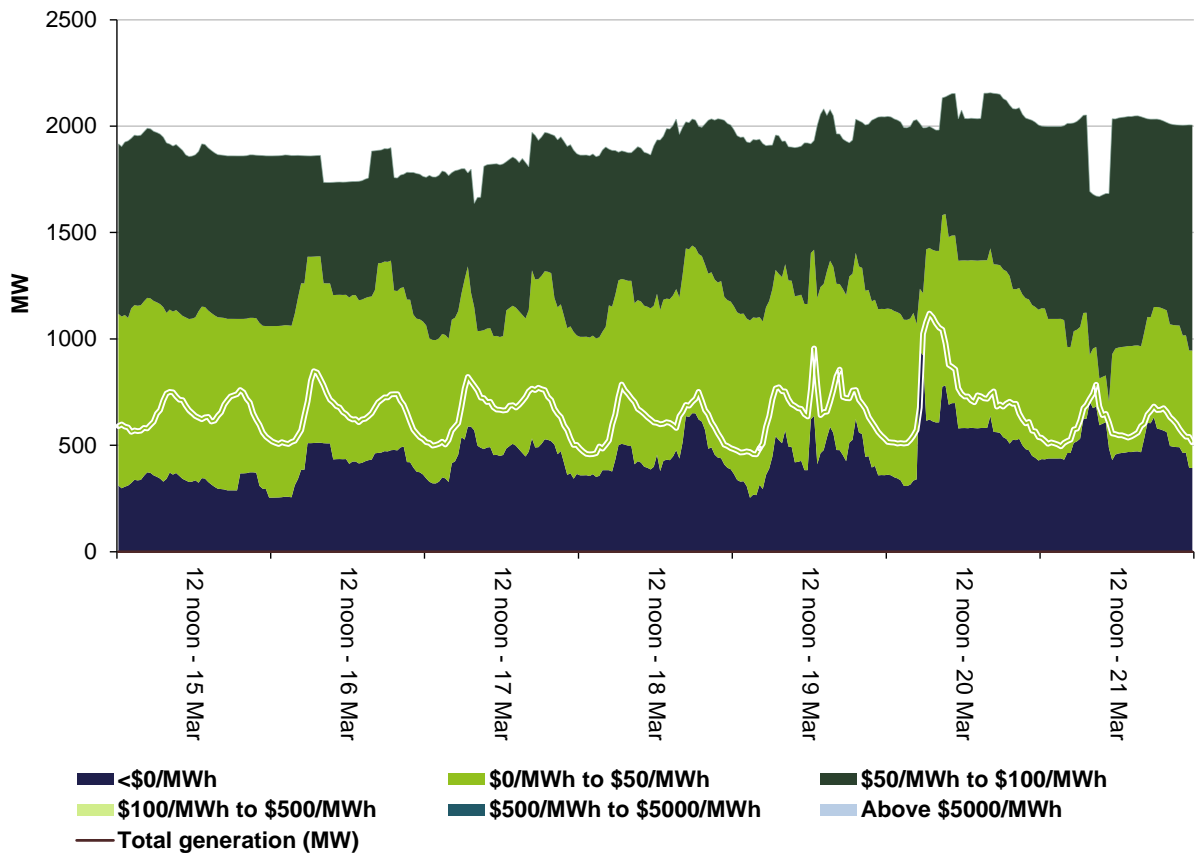


Figure 7: Tasmania generation and bidding patterns



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 \$278 500 or less than 1 per cent of energy turnover on the mainland.

The total cost of FCAS in Tasmania for the week was \$81 500 or less than 1.3 per cent of energy turnover in Tasmania.

Figure 8 : Daily frequency control ancillary service cost

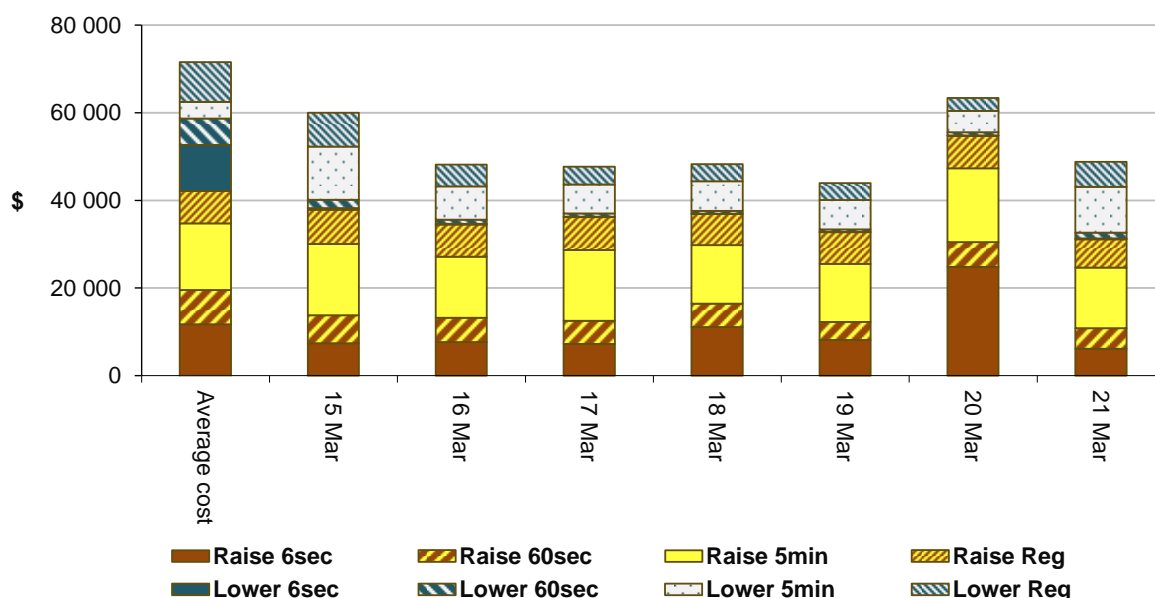


Figure 8 shows the daily breakdown of cost for each FCAS for the NEM, as well as the average cost since the beginning of the previous financial year.

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.

There were five occasions where the spot price in Queensland was greater than three times the Queensland weekly average price of \$67/MWh and above \$250/MWh.

During these high price periods QNI was supplying between 180 MW and 240 MW into Queensland limited by a system normal constraint used to avoid voltage collapse on the loss of Kogan Creek power station and transmission constraints relating to the overload of the Liddell Muswellbrook on the failure of the Liddell - Tamworth lines. At the same time flow on the Terranora interconnector was being forced into New South Wales by between 40 MW to 60 MW.

Thursday 19 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 pm	2350	38	39	8339	8049	8745	9980	9951	10 175

Demand forecasts were notably different to forecast, being 290 MW higher than forecast four hours ahead, but 406 MW lower than forecast 12 hours ahead. Availability was close to forecast four hours ahead, but 195 MW lower than forecast 12 hours ahead. However these differences between 12 and four hours had little effect on forecast prices.

Table 4: Rebids for 7 pm

Time in	Time effective	Participant	Station	Capacity rebid (MW)	Price from (\$/MWh)	Price to (\$/MWh)	Rebid reason
3.38 pm	3.45 pm	Arrow Energy	Braemar	42	200	12 948	1537A Change in 5min PD: Qld price increase SL
3.59 pm	5.05 pm	CS Energy	Gladstone	180	34	13 500	1559A Demand higher than 30 min forecast-SL
4.38 pm	4.45 pm	ERM Power	Oakey	-36	458	N/A	1636P Ambient conditions::change MW distrib.
4.15 pm	4.25 pm	Millmerran Energy Trader	Millmerran	50	7	13 500	16:14 A RRP above PD
6.14 pm	6.25 pm	Millmerran Energy Trader	Millmerran	40	-40	13 500	18:13 A RRP below PD
6.42 pm	6.50 pm	AGL Energy	Yabulu	71	0	13 243	1835~A~040 Chg in AEMO disp~41 demand increase Qld 8368 MW V PD 8
6.50 pm	7 pm	Stanwell Corporation	Tarong and Stanwell	170	<10 899*	13 100	1845A Material change in Mt Stuart Generation DI 1845

* the majority of this capacity was priced at \$275/MWh.

Late in the trading interval two rebids shifted 241 MW to high prices and with low price capacity fully dispatched, Stanwell's 6.50 pm rebid at Tarong and Stanwell caused the dispatch price to increase from \$275/MWh at 6.55 pm to \$12 948 at 7 pm, set by Arrow Energy's 3.38 pm rebid at Braemar.

Friday 20 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
4 pm	2101	95	37	8327	8096	8223	10 005	10 016	10 013
4.30 pm	2160	200	34	8408	8156	8295	9992	10 011	10 023
5 pm	1873	302	35	8438	8183	8343	9978	10 011	10 033
5.30 pm	1841	35	32	8308	8080	8197	9970	9989	10 043

Demand was up to 255 MW higher than forecast four hours ahead and availability was up to 33 MW lower than forecast four hours ahead.

Table 6: Rebids for 4 pm

Time in	Time effective	Participant	Station	Capacity rebid (MW)	Price from (\$/MWh)	Price to (\$/MWh)	Rebid reason
1.12 pm	1.20 pm	Callide Power Trading	Callide C	28	<14	13 500	1312A RRP above PD
1.14 pm	1.25 pm	Millmerran Energy Trader	Millmerran	75	7	13 500	13:14 A RRP above PD
3.39 pm	3.50 pm	CS Energy	Callide B	15	17	10 796	1538A dispatch price higher than 30min forecast-SL
3.51 pm	4 pm	Millmerran Energy Trader	Millmerran	25	7	13 500	15:51 A RRP below PD
3.52 pm	4 pm	Callide Power Trading	Callide C	30	<14	13 500	1537A RRP above PD

Three rebids during the trading interval shifted 70 MW up to prices greater than \$10 000. An increase in 5-minute demand of 93 MW from 3.55 pm to 4 pm coincided with Millmerran and Callide Powers rebids becoming effective and as a result the 5-minute price increased to \$10 796/MWh at 4 pm, set by Callide B's earlier rebid.

Table 7: Rebids for 4.30 pm

Time in	Time effective	Participant	Station	Capacity rebid (MW)	Price from (\$/MWh)	Price to (\$/MWh)	Rebid reason
1.12 pm	1.20 pm	Callide Power Trading	Callide C	28	<14	13 500	1312A RRP above PD
1.14 pm	1.25 pm	Millmerran Energy Trader	Millmerran	75	7	13 500	13:14A RRP above PD

An increase in 5-minute demand of 98 MW from 4.10 pm to 4.15 pm caused the dispatch price to reach \$10 899/MWh at 4.15 pm.

Table 8: Rebids for 5 pm

Time in	Time effective	Participant	Station	Capacity rebid (MW)	Price from (\$/MWh)	Price to (\$/MWh)	Rebid reason
1.12 pm	1.20 pm	Callide Power Trading	Callide C	28	19	13 500	1312A RRP above PD
1.14 pm	1.25 pm	Millmerran Energy Trader	Millmerran	75	7	13 500	13:14 A RRP above PD
4.36 pm	4.45 pm	Origin Energy	Mt Stuart	265	10 899	20	1635A constraint management - N^Q_NIL_B1 SL

Conditions at the time saw high priced (previously ramp rate limited) generators setting the dispatch price at \$10 899 at 4.40 pm. The dispatch price fell to \$35/MWh at 4.45 pm when Origin's rebid at Mt Stuart became effective.

Table 9: Rebids for 5.30 pm

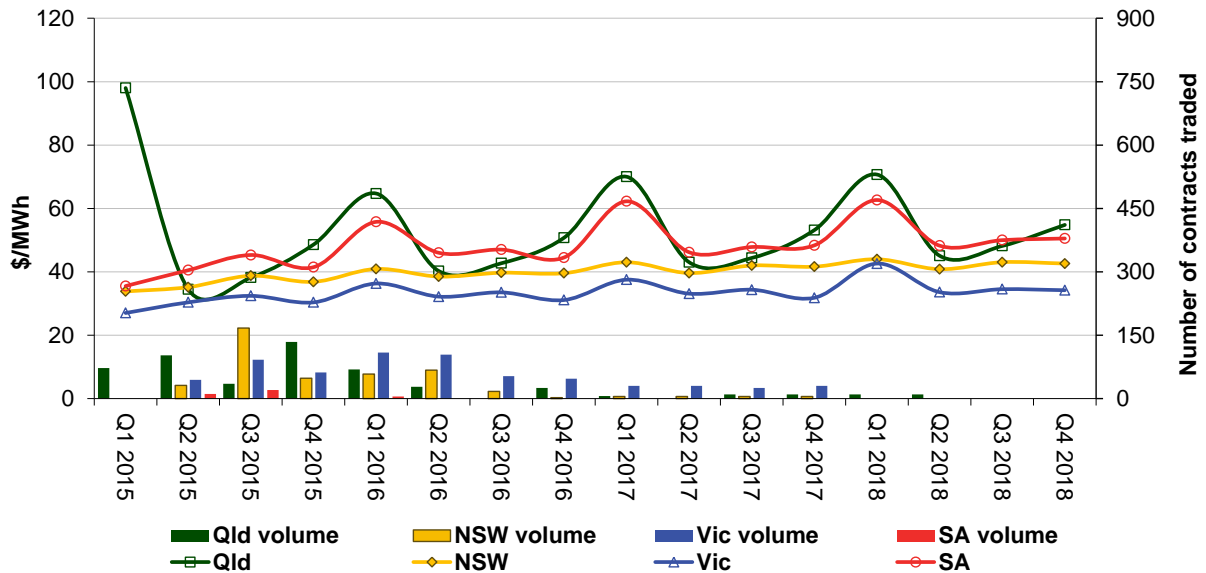
Time in	Time effective	Participant	Station	Capacity rebid (MW)	Price from (\$/MWh)	Price to (\$/MWh)	Rebid reason
4.10 pm	4.20 pm	ERM Power	Oakey	-11	<458	N/A	1609P Ambient conditions::change MW distrib.
4.18 pm	4.25 pm	ERM Power	Oakey	-5	0	N/A	1617P Ambient conditions::change MW distrib.
4.39 pm	4.50 pm	Millmerran Energy Trader	Millmerran	10	7	13 500	16:37 A change in 5min PD dispatch gen-SL
4.58 pm	5.05 pm	Callide Power Trading	Callide C	30	<19	13 500	1657A RRP below PD
4.58 pm	5.05 pm	Millmerran Energy Trader	Millmerran	25	7	13 500	16:57 A RRP below PD

The dispatch price reached \$10 899/MWh at 5.05 pm when Origin Energy's Mt Stuart 4.36 pm rebid was no longer effective and Callide Power and Millmerran's rebids became effective.

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.

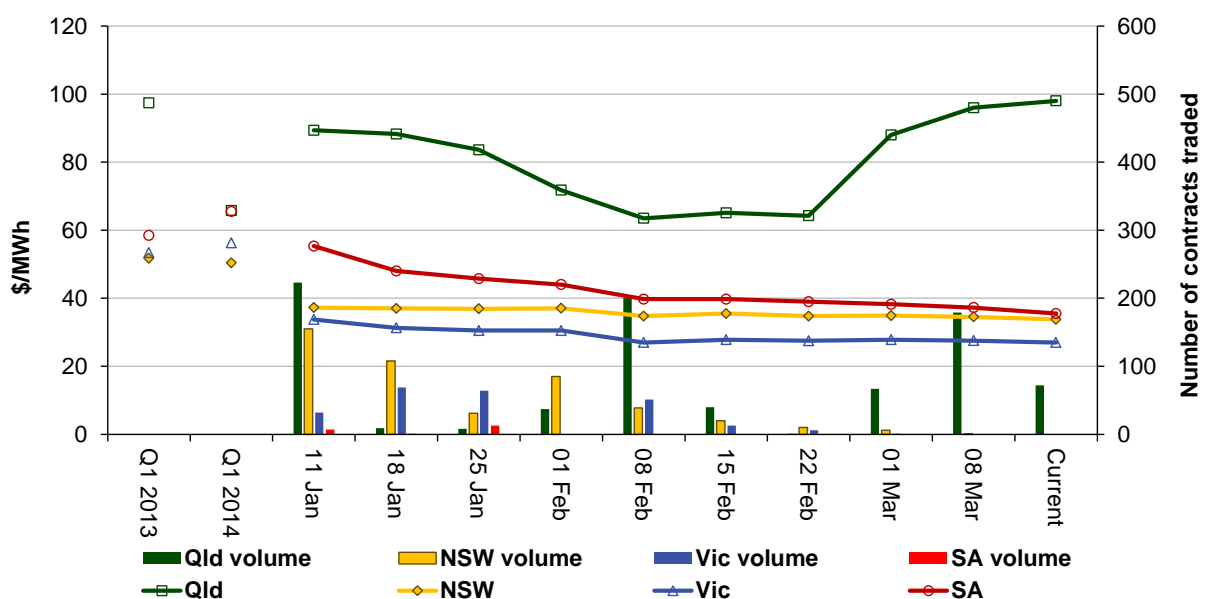
Figure 9 : Quarterly base future prices Q1 2015 – Q4 2018



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.

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



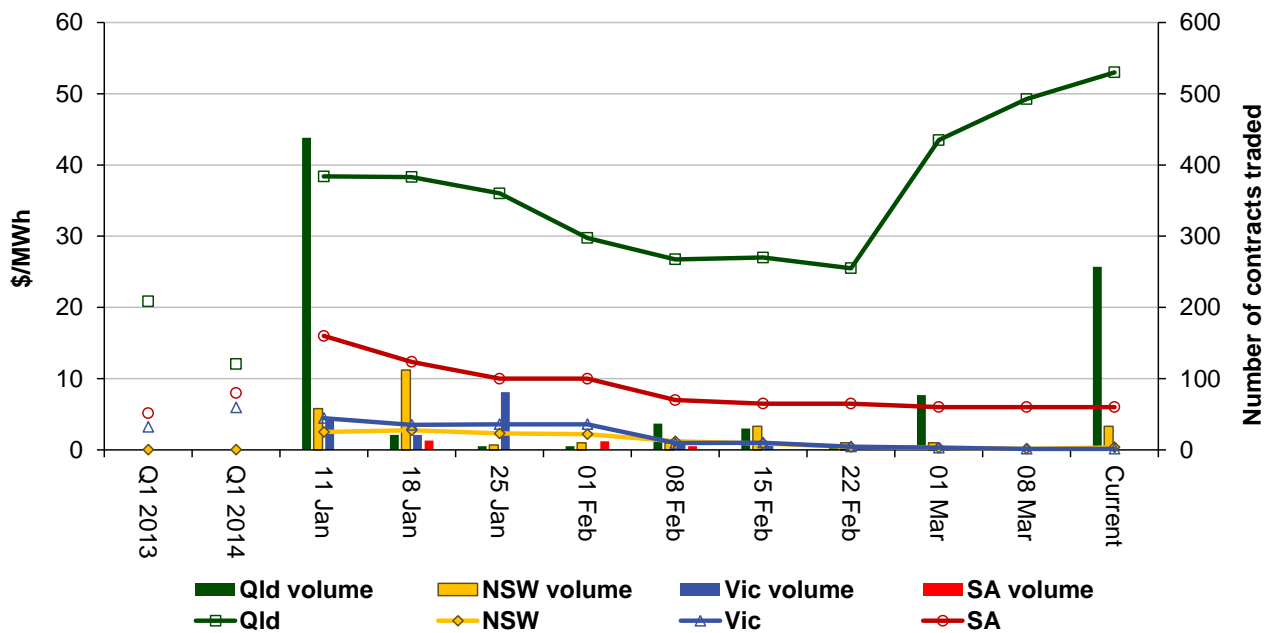
Note: Base contract prices are shown for each of the current week and the previous 9 weeks, with average prices shown for yearly periods 1 and 2 years prior to the current year.

Source: ASXEnergy.com.au

Prices of other financial products (including longer-term price trends) are available in the [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). 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

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