

## 5 – 11 June 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 5 to 11 June 2016.

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

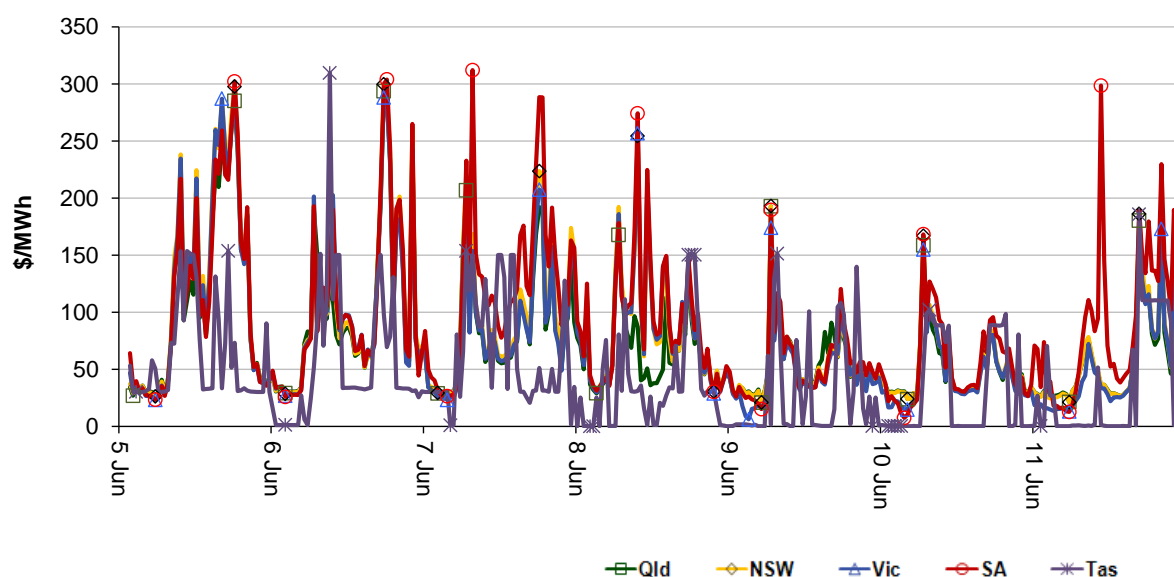
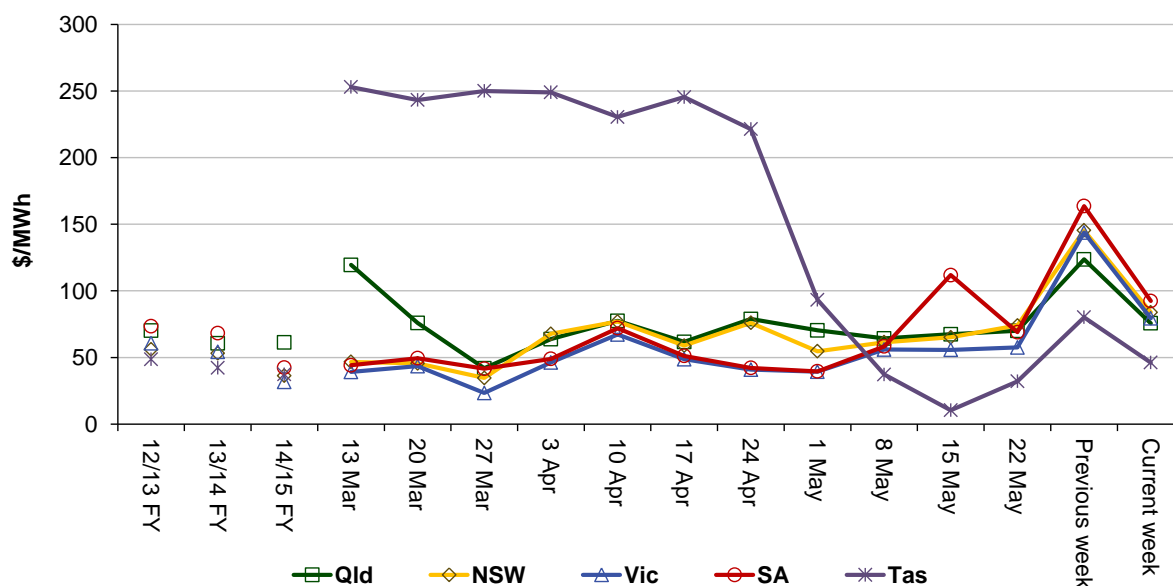


Figure 2 shows the volume weighted average (VWA) prices for the current week (with prices shown in Table 1) and the preceding 12 weeks, as well as the VWA price over the previous 3 financial years.

**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	76	84	79	92	46
14-15 financial YTD	63	36	31	42	38
15-16 financial YTD	63	52	48	63	98

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 329 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**

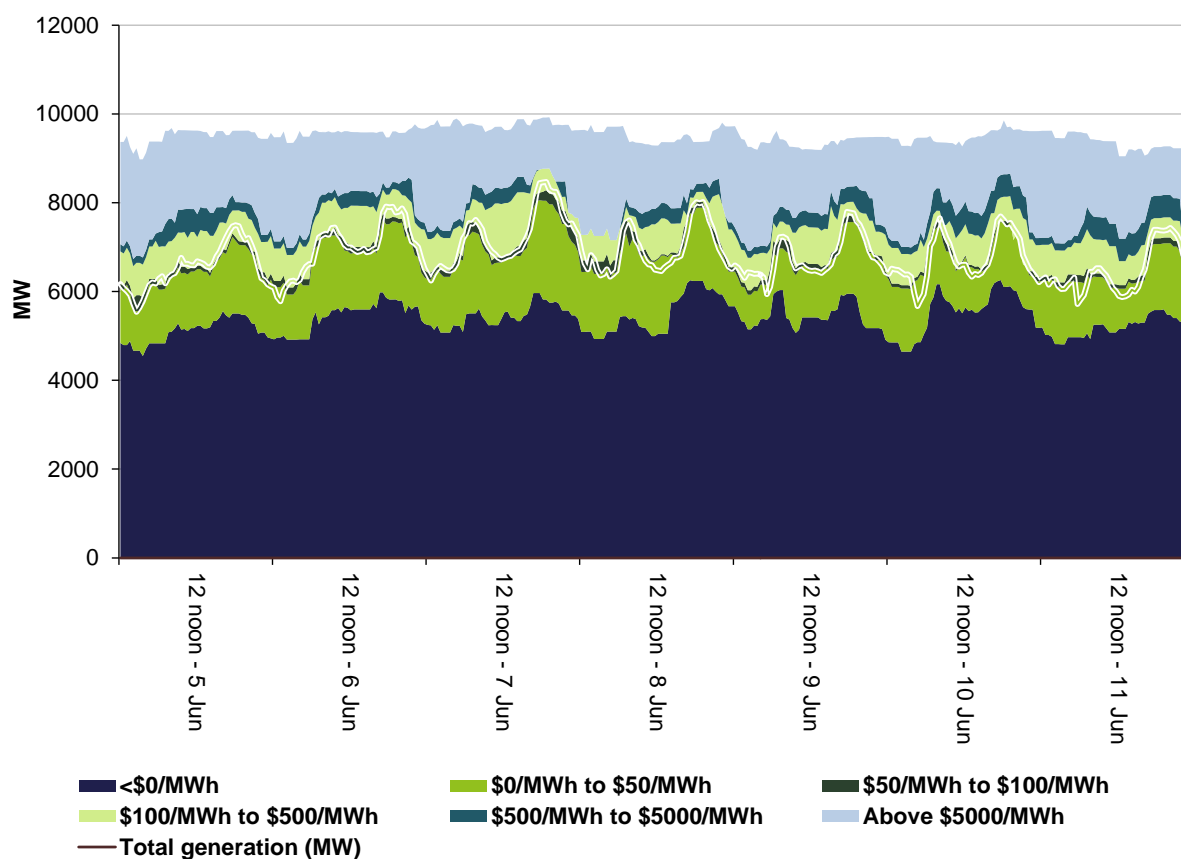
	Availability	Demand	Network	Combination
% of total above forecast	1	34	0	0
% of total below forecast	63	2	0	0

Note: Due to rounding, the total may not be 100 per cent.

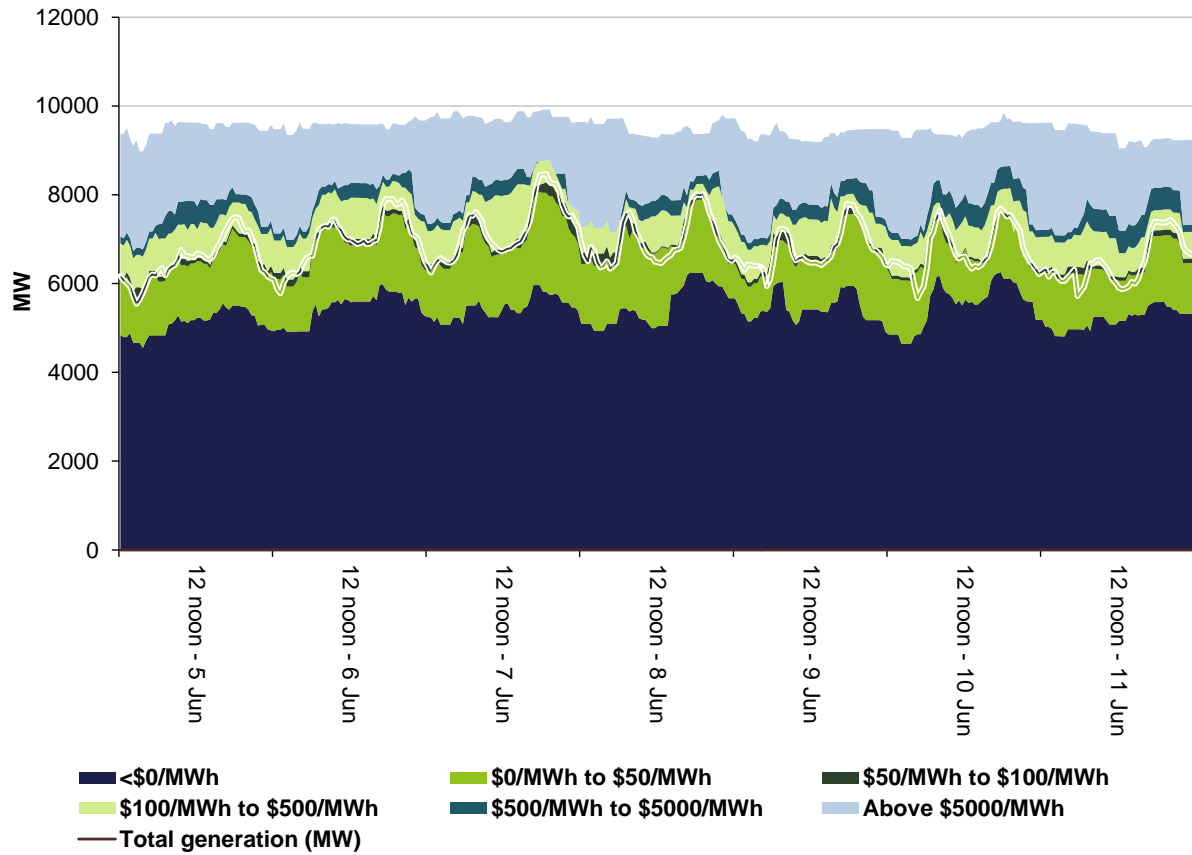
## Generation and bidding patterns

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.

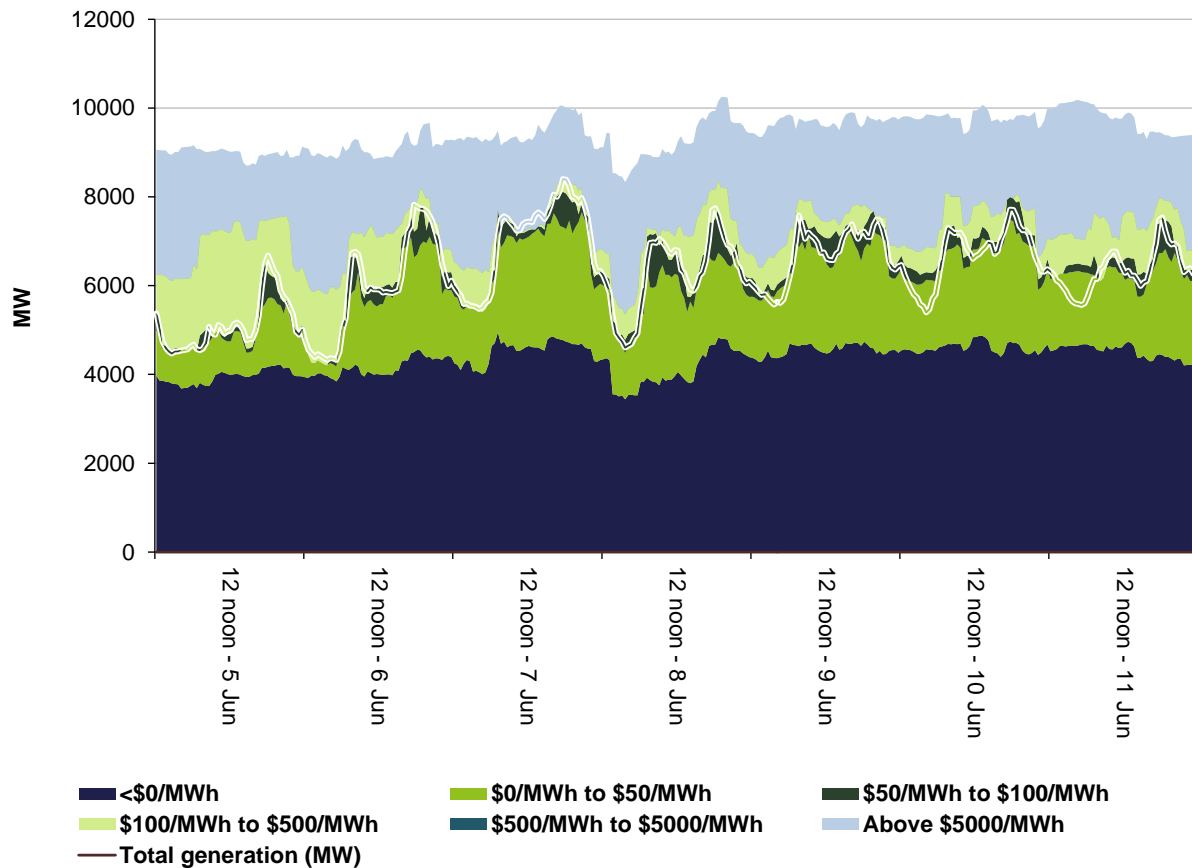
**Figure 3: Queensland generation and bidding patterns**



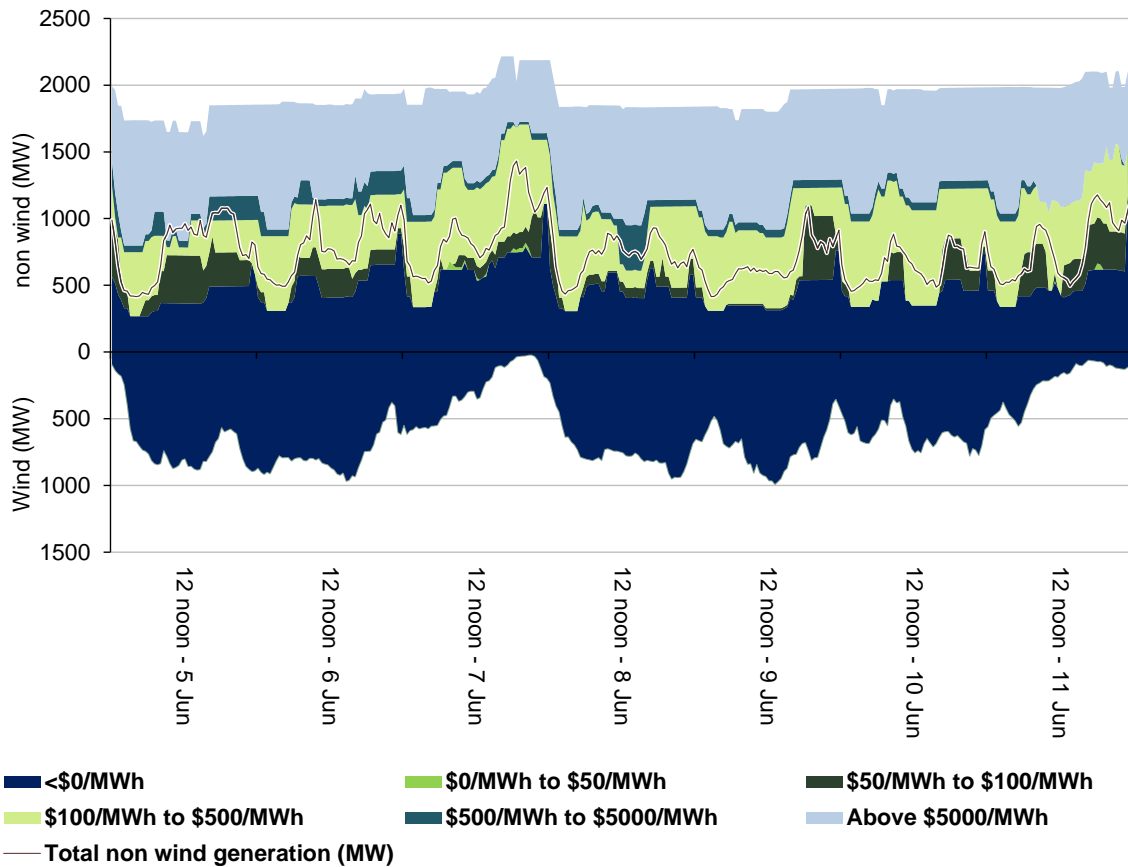
**Figure 4: New South Wales generation and bidding patterns**



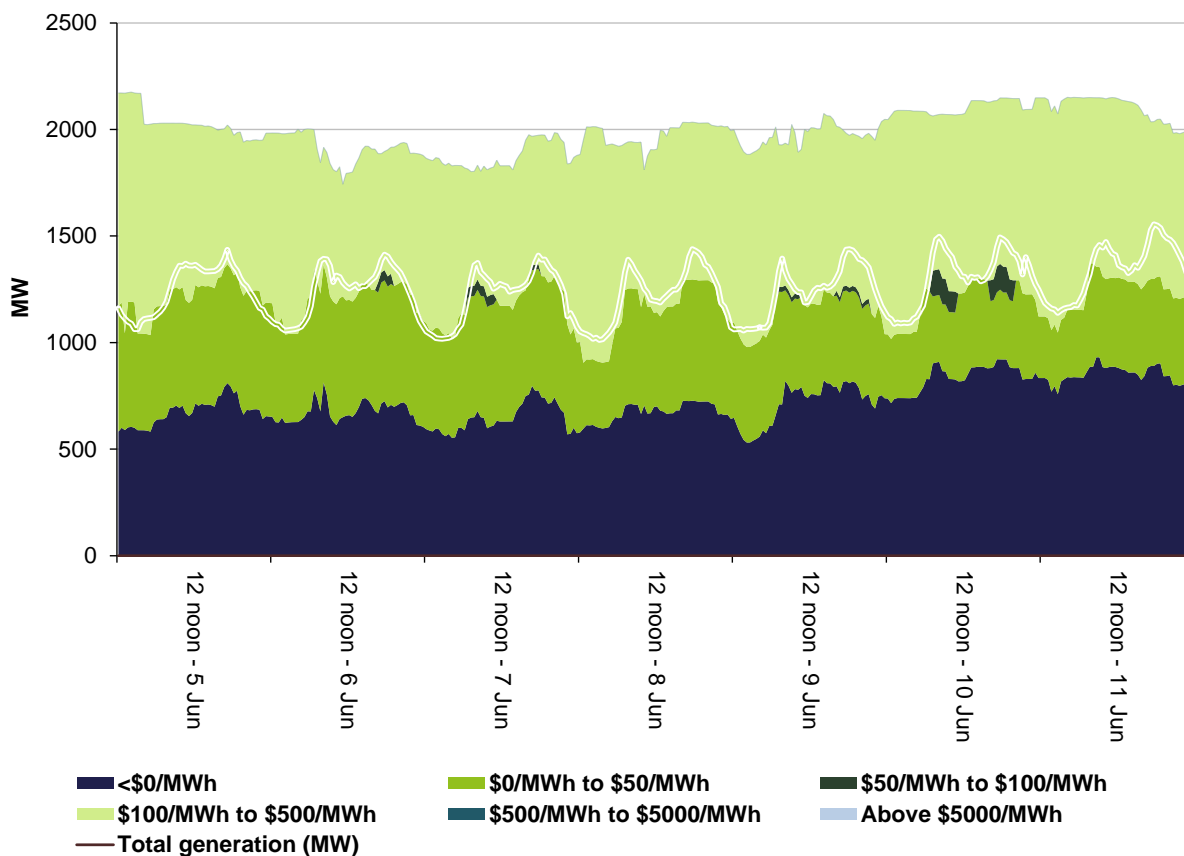
**Figure 5: Victoria generation and bidding patterns**



**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 \$2 155 000 or less than 1 per cent of energy turnover on the mainland.

The total cost of FCAS in Tasmania for the week was \$228 500 or less than 3 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**

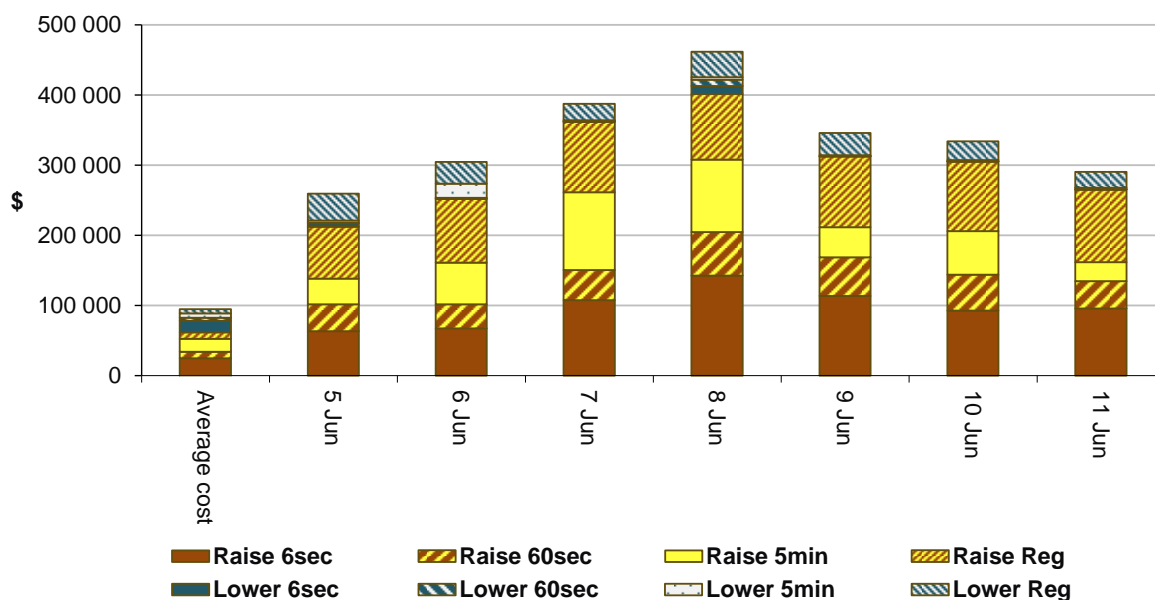


Figure 8 shows that daily FCAS costs were significantly higher than the average cost since the beginning of the previous financial year. The reasons for high FCAS costs were limited availability of raise FCAS on the mainland and the inability to transfer FCAS across Basslink due to the long term outage.

## 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.

### Mainland

There were seven occasions where spot prices were aligned and the New South Wales price (used as a proxy for the mainland price) was greater than three times the New South Wales weekly average price of \$84/MWh and above \$250/MWh.

### Sunday, 5 June

**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
3.30 pm	260.62	98.73	26.30	21 641	21 094	20 235	33 480	34 516	35 175
4.30 pm	285.43	199.45	27.84	22 735	22 228	21 379	34 157	35 140	36 000

Conditions at the time saw demand around 500 MW higher than forecast four hours ahead and availability was around 1000 MW lower than that forecast four hours ahead.

**Table 4: Rebids for 3.30 pm trading interval**

Submitted time	Time effective	Participant	Station	Capacity rebid (MW)	Price from (\$/MWh)	Price to (\$/MWh)	Rebid reason
10.54 am		Origin Energy	Eraring	-350	26	N/A	1052P CHANGE IN AVAIL - AIR HEATER LIMITATIONS
1.39 pm		CS Energy	Gladstone	-130	<36	N/A	1339P CONDENSER BACKFLUSH-SL
1.44 pm		GDF Suez	Loy Yang B	-420	11	N/A	1343P FUEL MANAGEMENT: COAL SHORTFALL
3.12 pm	3.20 pm	Origin Energy	Quarantine	-120	199	N/A	1510A AVOID UNECONOMIC START SL
3.18 pm	3.25 pm	CS Energy	Gladstone	130	N/A	<36	1518P CONDENSER BACKFLUSH-COMplete-SL
3.17 pm	3.25 pm	Origin Energy	Uranquinty	-166	282	N/A	1515A AVOID UNECONOMIC START - AVOID SHORT RUN SL

The above rebids saw dispatch prices increase from \$200/MWh to \$299/MWh during the trading interval.

**Table 5: Rebids for 4.30 pm trading interval**

Submitted time	Time effective	Participant	Station	Capacity rebid (MW)	Price from (\$/MWh)	Price to (\$/MWh)	Rebid reason
1.20 pm		CS Energy	Callide B	-135	0	N/A	1320P UNIT RTS REVISED-DELAYED-SL
1.44 pm		GDF Suez	Loy Yang B	-420	11	N/A	1343P FUEL MANAGEMENT: COAL SHORTFALL
2.58 pm		AGL Energy	Torrens Island	110	<120	300	1455~P~080 CHG IN PIPELINE COND~802 AVOID UNORTH OVERRUN SEAGAS
3.13 pm		AGL Energy	Liddell	-100	0	N/A	1510~P~020 REDUCTION IN AVAIL CAP~208 RTS 2 HOURS LATER THAN EXP
4.02 pm	4.10 pm	Origin Energy	Uranquinty	-166	282	N/A	1600A AVOID UNECONOMIC START - AVOID SHORT RUN SL
3.53 pm		Origin Energy	Quarantine	120	199	13 330	1552A AVOID UNECONOMIC START - AVOID SHORT

The above rebids resulted in dispatch prices at around \$285/MWh for the entire trading interval.

**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
6 pm	272.85	286.87	238.05	25 593	25 542	24 765	34 307	34 883	35 911
6.30 pm	297.68	299.01	246.98	25 604	25 692	24 911	34 240	34 702	35 945

Prices were close to forecast four hours ahead.



## Monday, 6 June

**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 pm	299.56	299.80	299.80	28 172	27 873	27 907	34 891	35 699	36 179
6.30 pm	292.95	299.80	299.80	28 072	27 787	27 961	34 936	35 787	36 297
10.30 pm	262.41	298.23	299.80	23 247	23 117	23 146	33 501	34 153	33 998

Prices were close to forecast four and 12 hours ahead.

## New South Wales

There were eight occasions when the spot price in New South Wales was greater than three times the New South Wales weekly average price of \$84/MWh and above \$250/MWh. Seven of these occurred when prices were aligned across the mainland regions and are detailed in the mainland section. The other occasion is presented below.

## Wednesday, 8 June

**Table 8: 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
10 am	254.26	281.55	199.45	8818	9010	8951	11 245	11 084	10 969

The spot price was close to forecast four hours ahead (and aligned with Victoria).

## Victoria

There were seven occasions when the spot price in Victoria was greater than three times the Victoria weekly average price of \$79/MWh and above \$250/MWh. Six of these occurred when prices were aligned across the mainland regions and are detailed in the mainland section. The other occasion is presented below.

**Tuesday, 7 June**

**Table 9: 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
10 am	256.66	274.74	181.22	6419	6250	6229	9092	8985	9673

The spot price was close to forecast four hours ahead and (aligned with New South Wales).

## South Australia

There were seven occasions when the spot price in South Australia was greater than three times the South Australia weekly average price of \$92/MWh and above \$250/MWh. Five of these occurred when prices were aligned and is detailed in the mainland section. The other two occasions are presented below.

**Tuesday, 7 June**

**Table 10: 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 am	311.98	204.00	199.45	1516	1496	1465	2359	2412	2466

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

At 6.52 am, AGL rebid 190 MW of capacity at Torrens Island from prices below \$120/MWh to \$300/MWh and above. The reason given was “0645~A~050 chg in AEMO PD~56 price increase VIC 5MPD \$234.34 VS PD \$87.97 [0735]”. As a result the dispatch price increased to around \$300/MWh from 7.35 am and remained at that level for the rest of the trading interval.

**Table 11: 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 pm	288.37	343.53	349.95	1977	1926	1923	2276	2292	2292
7 pm	288.14	349.95	349.95	1991	1949	1929	2158	2278	2274

Prices were close to forecast.

## Saturday, 11 June

**Table 12: 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
11 am	298.51	64.99	64.99	1142	1205	1203	2181	2094	2077

Although demand was lower and availability higher than forecast four hours ahead, the spot price was higher than the forecast.

**Table 13: Rebids for 11 am trading interval**

Submitted time	Time effective	Participant	Station	Capacity rebid (MW)	Price from (\$/MWh)	Price to (\$/MWh)	Rebid reason
8.27 am		Origin Energy	Quarantine	120	199	13800	0825P MANAGEMENT OF FUEL AND LINEPACK SL
9.49 am		AGL	Torrens Island	350	<80	>120	0931~F~080 CHG IN PIPELINE COND~82 CHANGE IN IMBAL POS SEAGAS - AVOID NEGATIVE IMBALANCE
10.14 am		AGL	Torrens Island	325	<160	300	1001~F~080 CHG IN PIPELINE COND~82 CHANGE IN IMBAL POS SEAGAS - AVOID NEGATIVE IMBALANCE

As a result of the above rebids the dispatch price was at around \$300/MWh for the entire trading interval (set by AGL, at Torrens Island Power Station).

## Tasmania

There was one occasion where the spot price in Tasmania was greater than three times the Tasmania weekly average price of \$46/MWh and above \$250/MWh.

## Monday, 6 June

**Table 14: 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
9.30 am	309.59	155.34	160.00	1271	1314	1303	1792	1812	1704

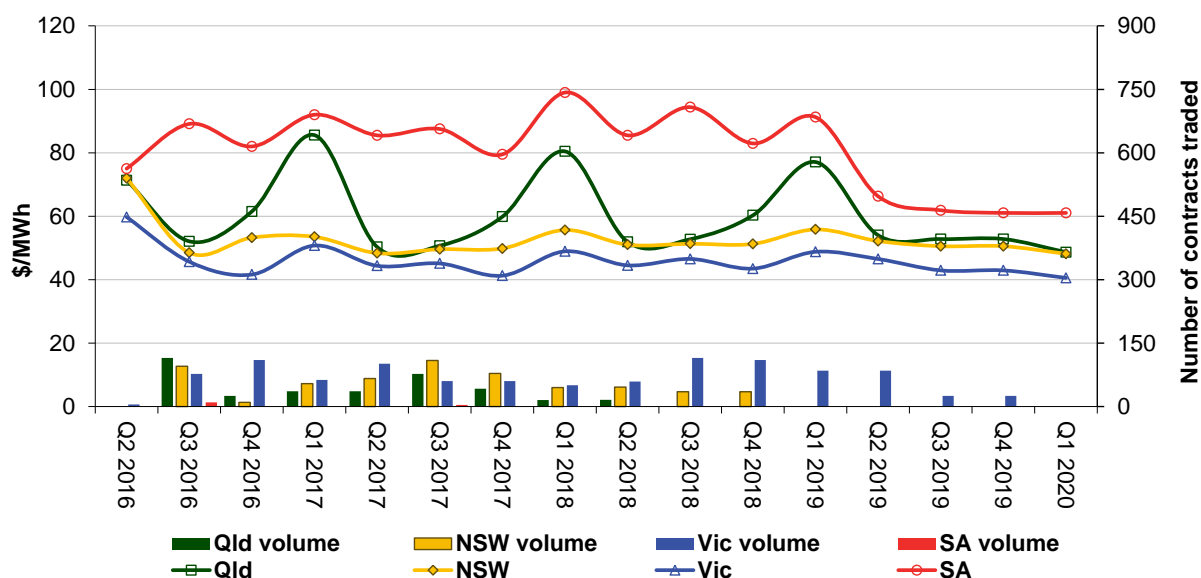
Conditions at the time saw demand and availability close to forecast four hours ahead.

At 9.20 am an increase in requirements for local raise regulation services caused the cost of this service to increase. The co-optimisation of this service with the energy market saw the dispatch price of energy increase to \$1077/MWh. Energy prices returned to previous levels following an increase in low cost raise regulation services.

## 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.

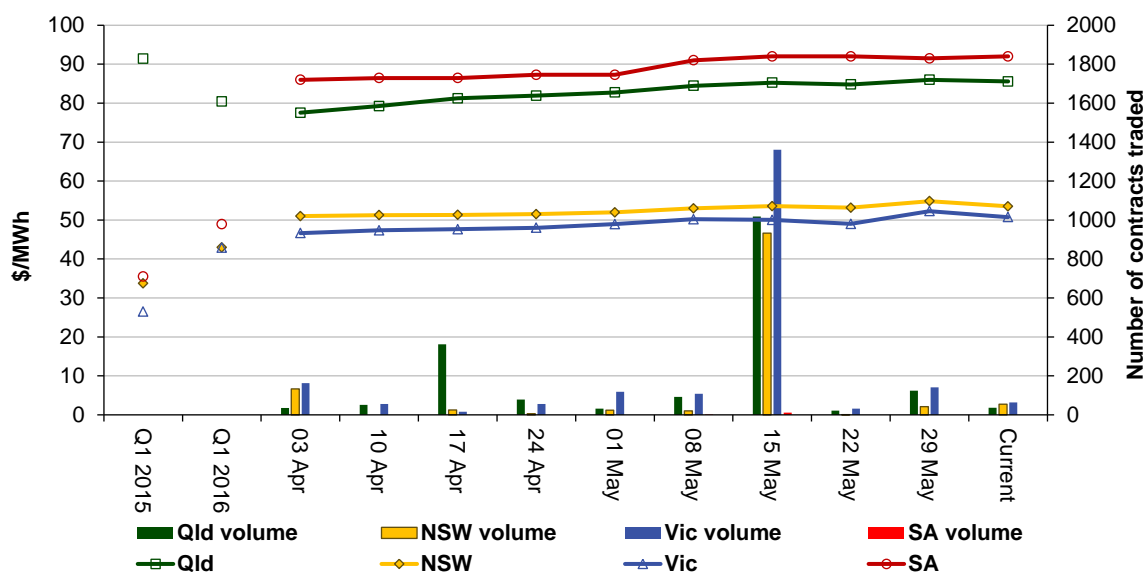
**Figure 9: Quarterly base future prices Q2 2016 – Q1 2020**



Source. ASXEnergy.com.au

Figure 10 shows how the price for each regional Quarter 1 2017 base contract has changed over the last 10 weeks (as well as the total number of trades each week). The closing quarter 1 2015 and quarter 1 2016 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 2017 base contracts over the past 10 weeks (and the past 2 years)**



Note.

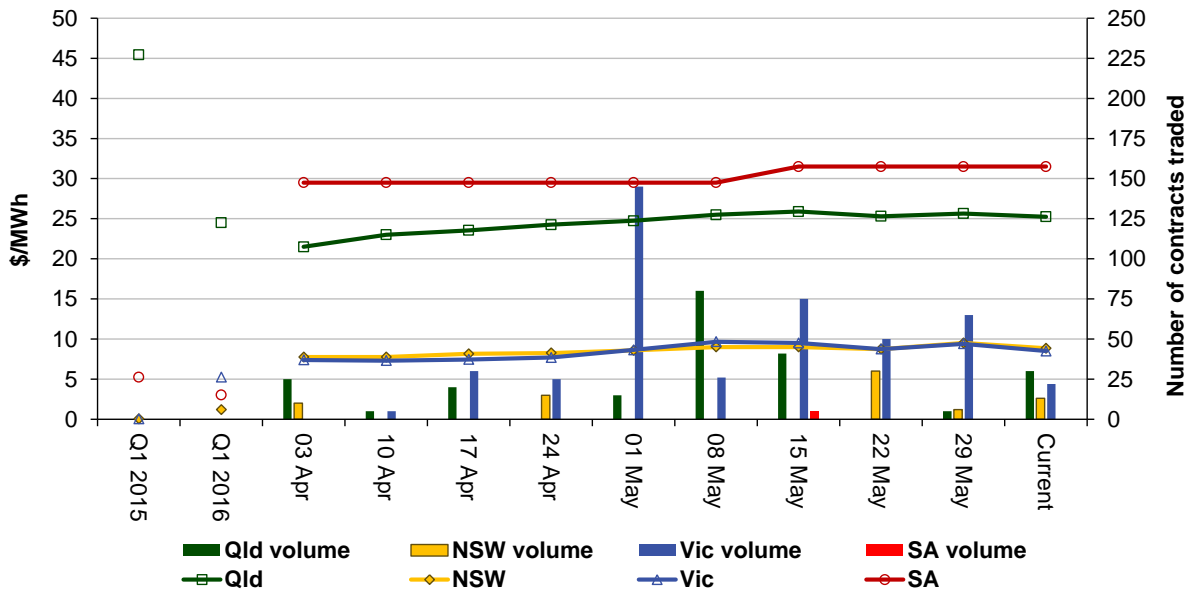
Base contract prices are shown for each of the current week and the previous 9 weeks, with average prices shown for periods 1 and 2 years prior to the current year.

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 2017 cap contract has changed over the last 10 weeks (as well as the total number of trades each week). The closing quarter 1 2015 and quarter 1 2016 prices are also shown.

**Figure 11: Price of Q1 2017 cap contracts over the past 10 weeks (and the past 2 years)**



Source: ASXEnergy.com.au

**Australian Energy Regulator**  
June 2016