Electricity Report

AUSTRALIAN ENERGY REGULATOR

28 April – 4 May 2019

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 28 April – 4 May 2019.

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

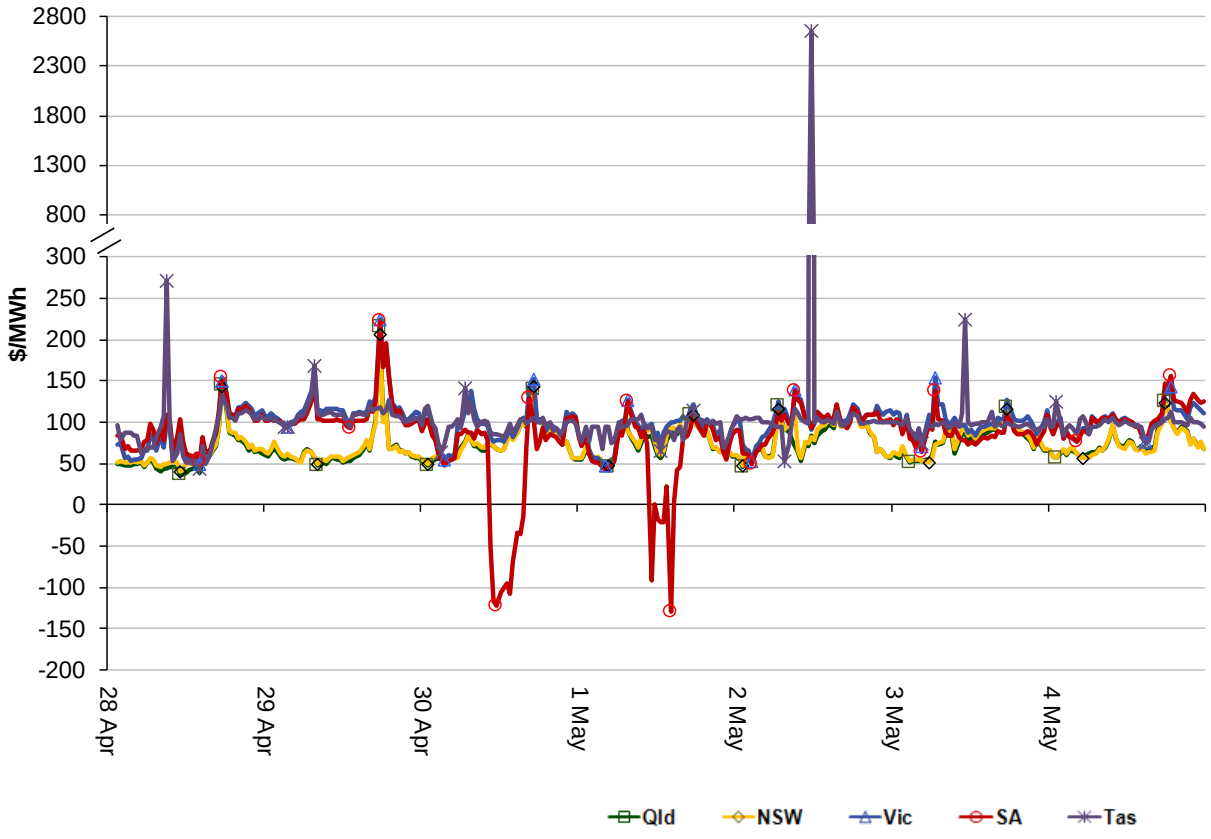


Figure 2 shows the volume weighted average (VWA) prices for the current week (with prices shown in Table 1) and the preceding 12 weeks, as well as the VWA price over the previous 3 financial years.

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

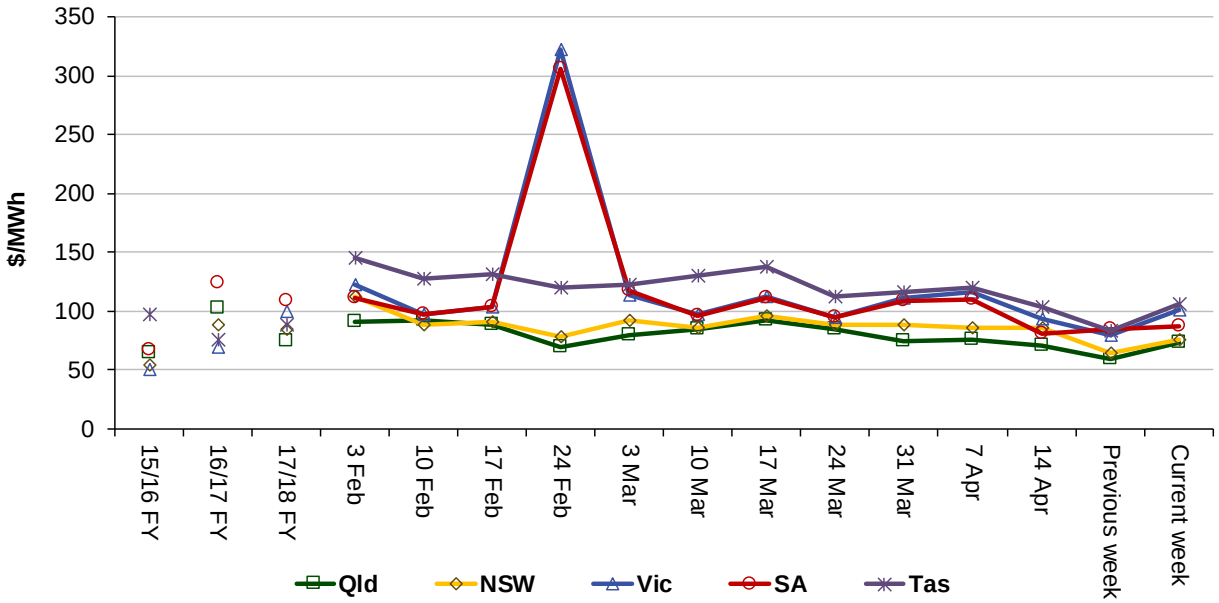


Table 1: Volume weighted average spot prices by region ($/MWh)

Region	Qld	NSW	Vic	SA	Tas
Current week	74	75	100	87	106
17-18 financial YTD	74	83	101	110	90
18-19 financial YTD	83	93	128	135	87

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 141 trading intervals throughout the week where actual prices varied significantly from forecasts. This compares to the weekly average in 2018 of 199 counts and the average in 2017 of 185. 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	10	47	0	3
% of total below forecast	6	30	0	3

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

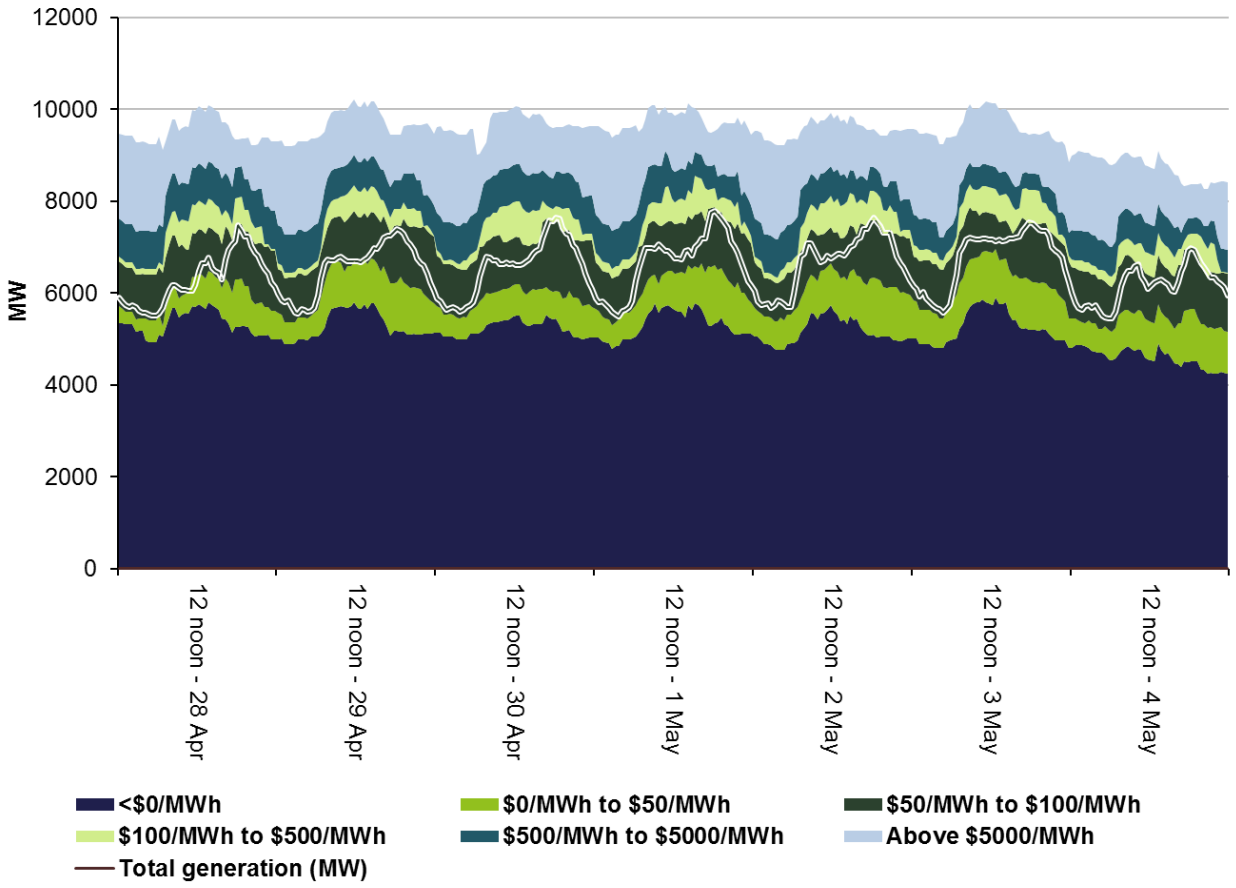


Figure 4: New South Wales generation and bidding patterns

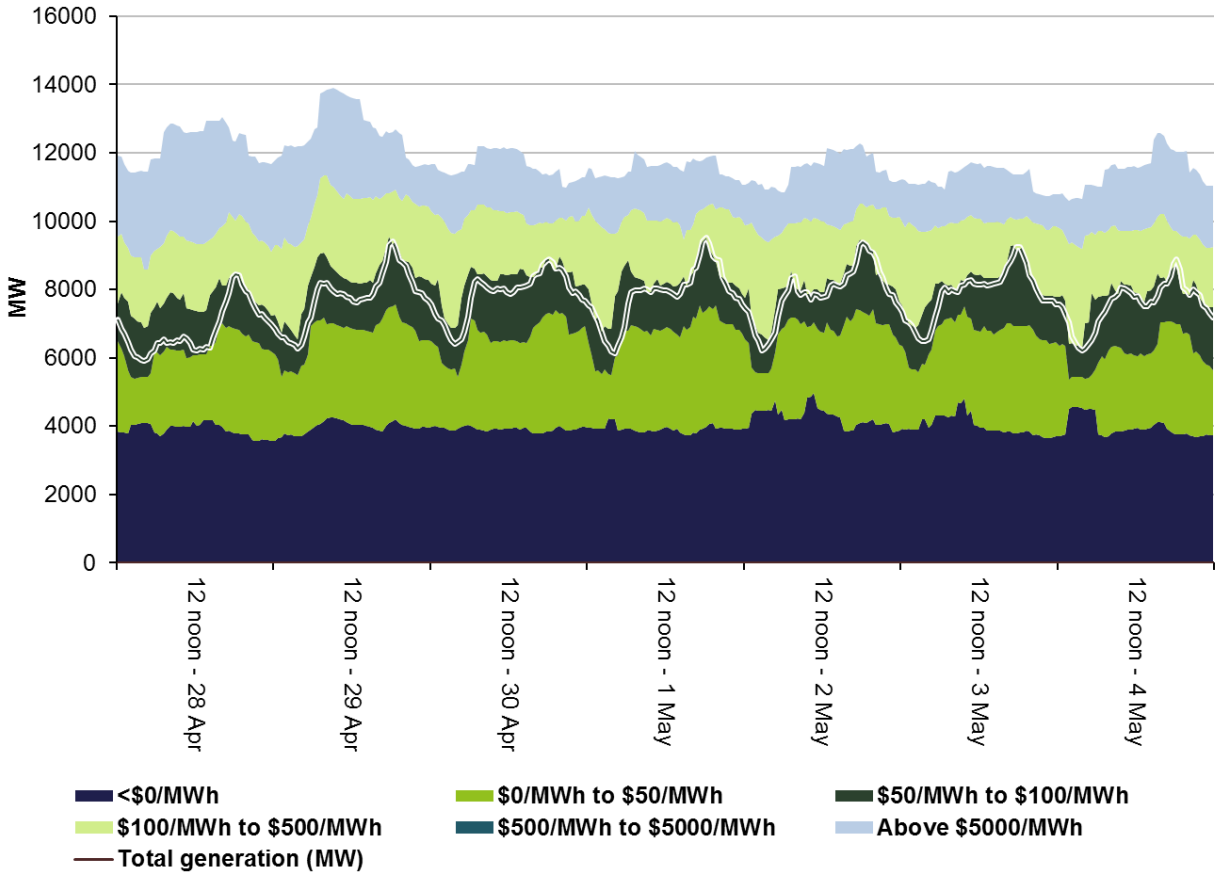


Figure 5: Victoria generation and bidding patterns

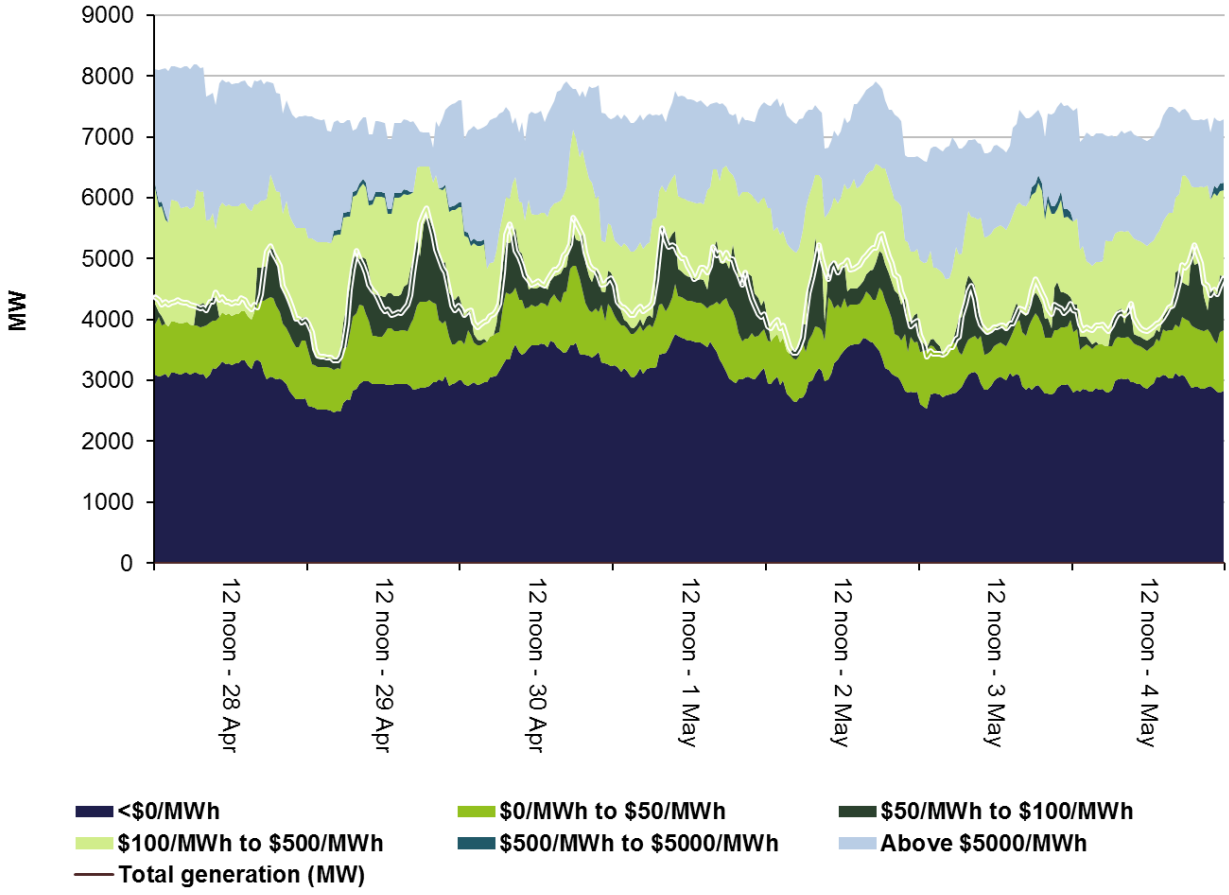


Figure 6: South Australia generation and bidding patterns

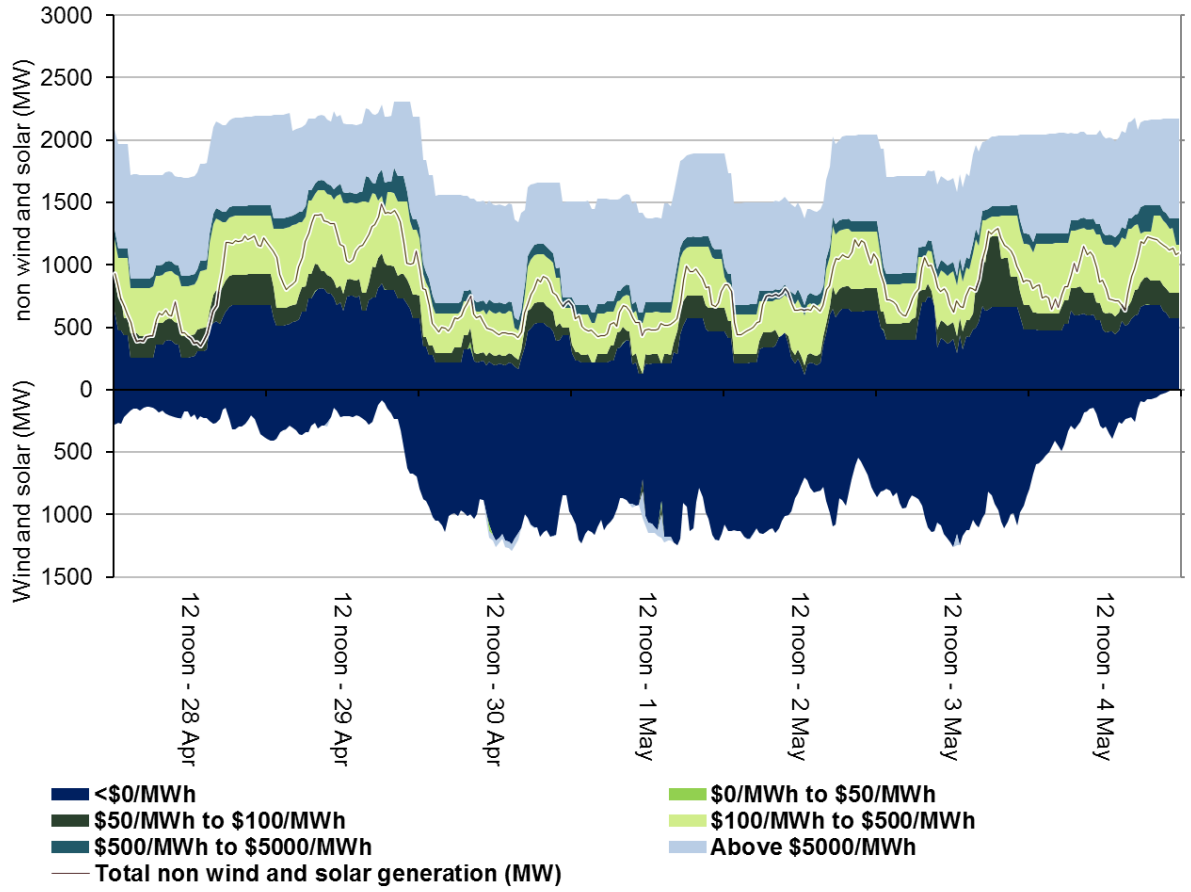
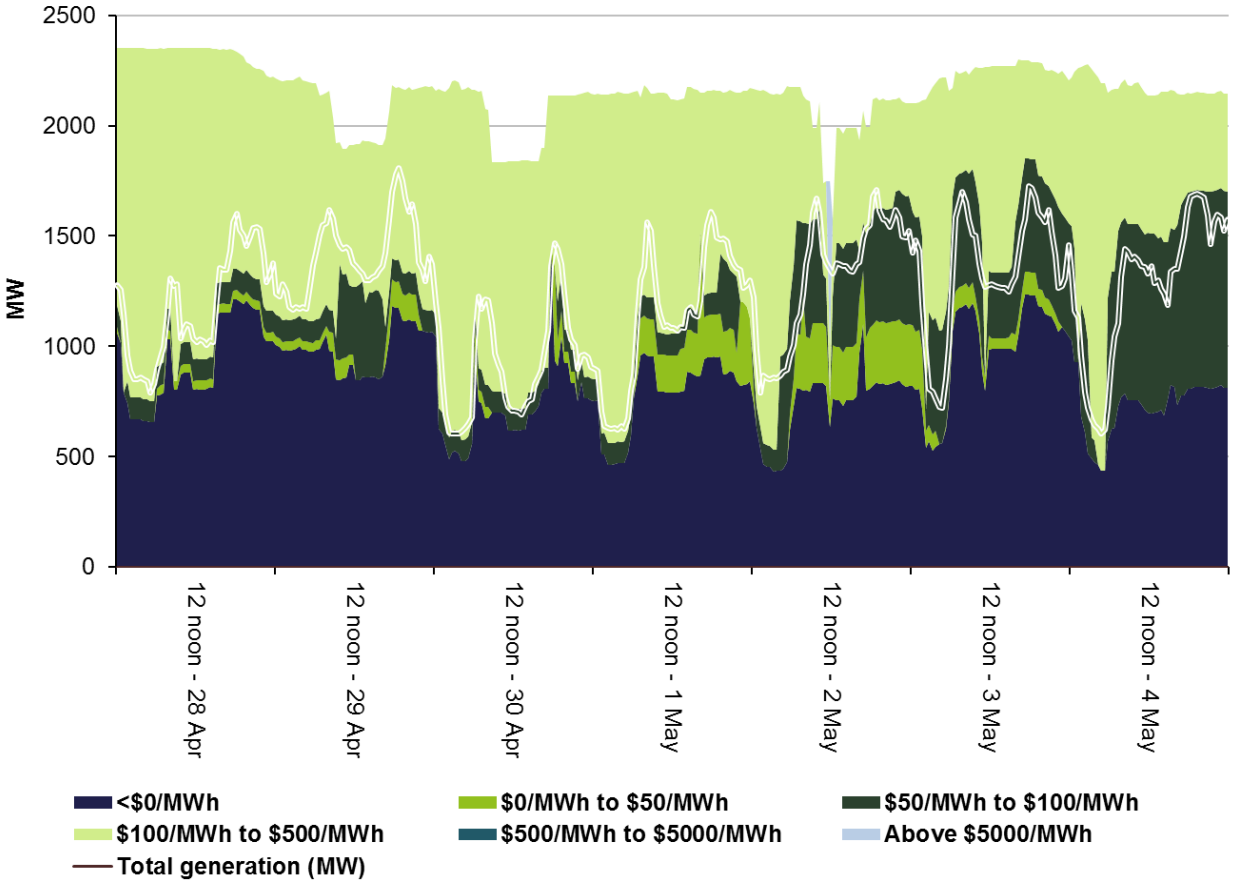


Figure 7: Tasmania generation and bidding patterns



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.

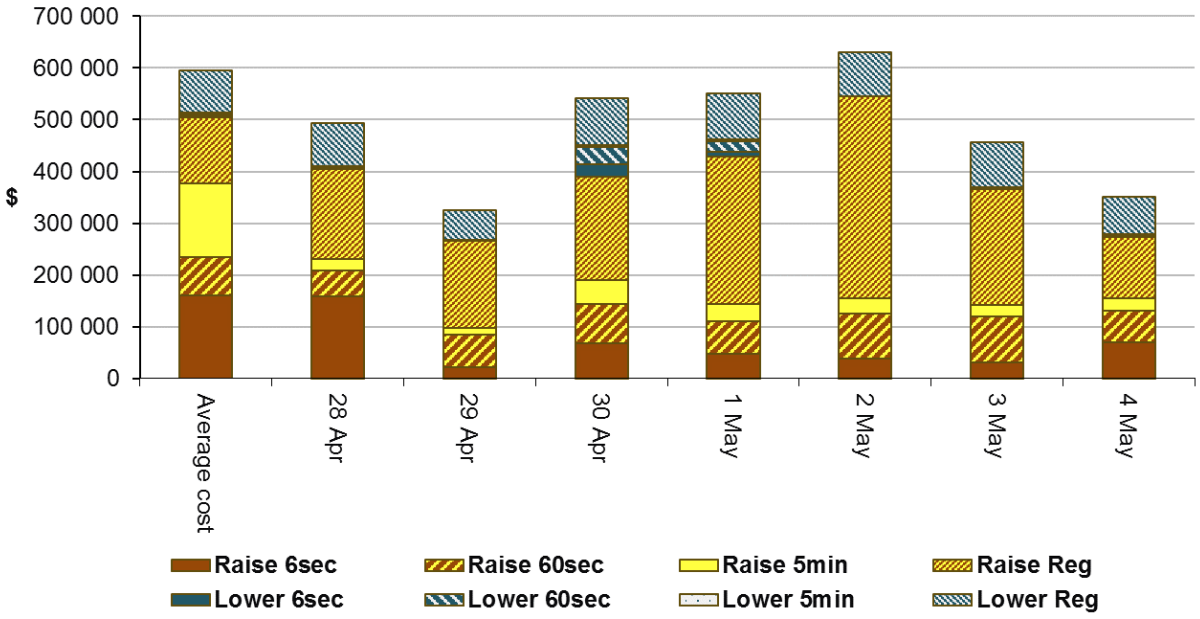
The Electricity Rules stipulate that generators pay for raise contingency services and customers pay for lower contingency services. Regulation services are paid for on a "causer pays" basis determined every four weeks by AEMO.

The total cost of FCAS on the mainland for the week was $2 742 500 or around 1 per cent of energy turnover on the mainland.

The total cost of FCAS in Tasmania for the week was $606 500 or around 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



Detailed market analysis of significant price events

South Australia

There were six occasions where the spot price in South Australia was below -$100/MWh.

Tuesday, 30 April

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
11.30 am	-117.12	-1000.00	-1000.00	950	928	934	2675	2748	2775
Midday	-121.50	-1000.00	-1000.00	906	940	921	2697	2776	2780
12.30 pm	-106.67	-1000.00	-1000.00	940	944	924	2745	2802	2800
1 pm	-101.33	-1000.00	-1000.00	938	944	929	2707	2778	2814
2 pm	-108.33	-1000.00	-1000.00	1011	962	944	2742	2788	2802

Demand and availability were close to forecast, four hours prior. Participants in South Australia rebid between 164 MW to 407 MW of capacity from the price floor to above -$100/MWh for these five trading intervals, see Table 4 for rebid details. As a result the dispatch price was around -$100/MWh throughout the above intervals.

Table 4: South Australia significant rebids

Submitted time	Effective trading intervals	Participant	Station	Capacity rebid (MW)	Price from ($/MWh)	Price to ($/MWh)	Rebid reason
9.48 am	11.30 am midday 12.30 pm 1 pm	Vena Energy Services (Australia) Pty Ltd	Tailem Bend Solar Project 1	95	-1000	14 500	09:48 A pd consistently show negative prices
9.57 am	11.30 am midday 12.30 pm 1 pm	Willogoleche Power Pty Ltd	Willogoleche Wind Farm	83	-1000	-100	0705~A~constraint management: I-HYSE
10.38 am	11.30 am midday 12.30 pm 1 pm 2 pm	Engie	Pelican Point	10	-1000	78	0955~P~update mingen: current ambient temperature
10.48 am	11.30 am midday	Trustpower	Snowtown WF	99	-1000	-40	1045 A SA 5min pd price forecast change for 1045 to 1140 at 1030 was >50 at 1045 is 60 to -1000
11.11 am	11.30 am	EnergyAustralia	Waterloo WF	120	-1000	-60	11:11 ~ A ~ band adj to 5min negative dp
11.41 am	midday	EnergyAustralia	Waterloo WF	120	-1000	-90	11:41 ~ A ~ band adj to 5min negative dp

Submitted time	Effective trading intervals	Participant	Station	Capacity rebid (MW)	Price from ($/MWh)	Price to ($/MWh)	Rebid reason
11.23 am	12.30 pm 1 pm 2 pm	AGL Energy	Hallett 1 WF	59	-1000	-79	1100~A~050 chg in AEMO pd~55 pd price increase SA $848
12.07 pm	12.30 pm	EnergyAustralia	Waterloo WF	120	-1000	-90	12:07 ~ A ~ band adj to 5min negative dp
1.44 pm	2 pm	AGL Energy	Hallett 2 WF	35	-1000	-35	1338~A~050 chg in AEMO pd~55 pd price increase [SA) 5 min pd - $100 vs 30 min pd -$40 pe 1400
1.44 pm	2 pm	AGL Energy	North Brown Hill WF	40	-1000	-35	1338~A~050 chg in AEMO pd~55 pd price increase [SA) 5 min pd - $100 vs 30 min pd -$40 pe 1400
1.44 pm	2 pm	AGL Energy	The Bluff WF	20	-1000	-35	1338~A~050 chg in AEMO pd~55 pd price increase [SA) 5 min pd - $100 vs 30 min pd -$40 pe 1400

Wednesday, 1 May

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
2.30 pm	-128.78	-151.85	-3.09	1063	986	1089	2563	2732	2640

Conditions at the time saw prices close to forecast, four hours prior.

Tasmania

There was one occasion where the spot price in Tasmania was greater than three times the Tasmania weekly average price of $106/MWh and above $250/MWh.

Thursday, 2 May

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
Midday	2656.29	109.81	104.15	1135	1144	1120	1756	1794	1765

Demand and availability were close to forecast, four hours prior. From 11.30 am, Hydro Tasmania rebid capacity across a number of its generators from less than $112/MWh to the

price cap, see Table 7 for rebid details. As a result, dispatch prices rose to $404/MWh at 11.45 am and then to the price cap at 12 pm.

Table 7: Tasmania significant rebids

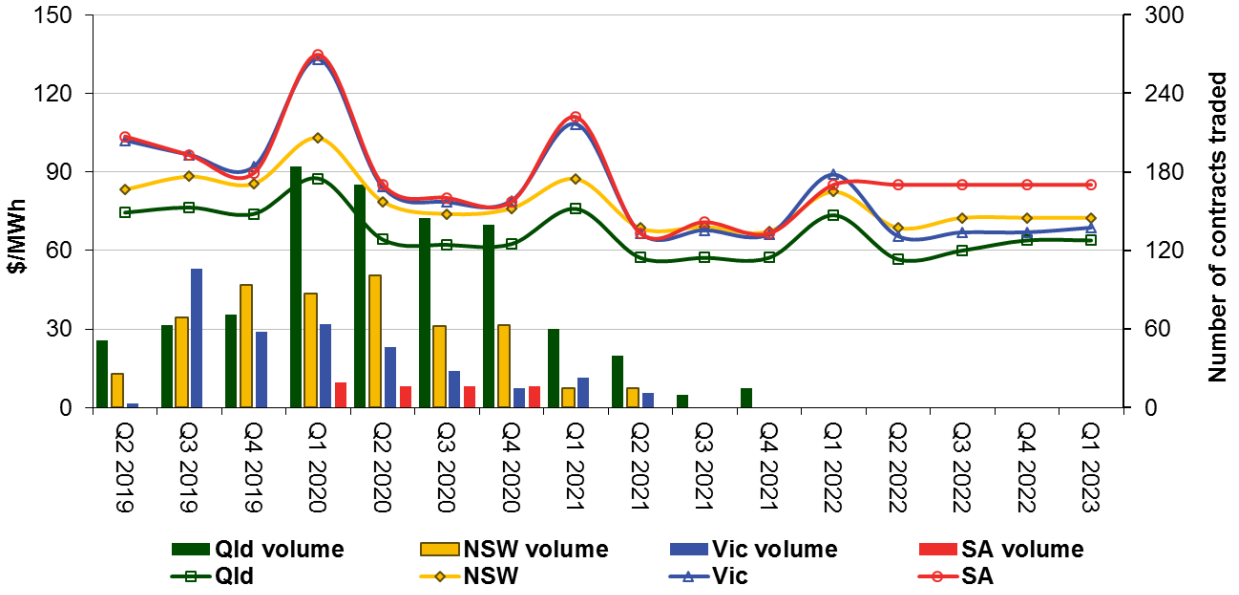
Rebid tables

Submitted time	Time effective	Participant	Station	Capacity rebid (MW)	Price from ($/MWh)	Price to ($/MWh)	Rebid reason
11.30 am	11.40 am	Hydro Tasmania	Mackintosh	78	<112	404	1121A price different from forecast: VIC
11.36 am	11.45 am	Hydro Tasmania	Reece	238	<112	404	1131A price different from forecast: VIC
11.46 am	11.55 am	Hydro Tasmania	Cethana	15	112	404	1146A Basslink flow > forecast
11.46 am	11.55 am	Hydro Tasmania	Poatina 110kv	114	<100	>269	1146A Basslink flow > forecast
11.46 am	11.55 am	Hydro Tasmania	Poatina 220kv	106	<100	>269	1146A Basslink flow > forecast
11.51 am	12 pm	Hydro Tasmania	Mackintosh	78	404	14 500	1151P targets>forecast: Reece #2
11.51 am	12 pm	Hydro Tasmania	Meadowbank	22	404	14 500	1151P targets>forecast: Reece #2
11.51 am	12 pm	Hydro Tasmania	Reece	238	404	14 500	1151P targets>forecast: Reece #2
11.51 am	12 pm	Hydro Tasmania	Trevallyn	97	404	14 500	1151P targets>forecast: Reece #2
11.51 am	12 pm	Hydro Tasmania	Tribute	85	404	14 500	1151P targets>forecast: Reece #2
11.51 am	12 pm	Hydro Tasmania	Tungatinah	58	404	14 500	1151P targets>forecast: Reece #2
11.51 am	12 pm	Hydro Tasmania	Bell Bay, Tamar Valley	158	405	14 500	1151P targets>forecast: Reece #2

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.

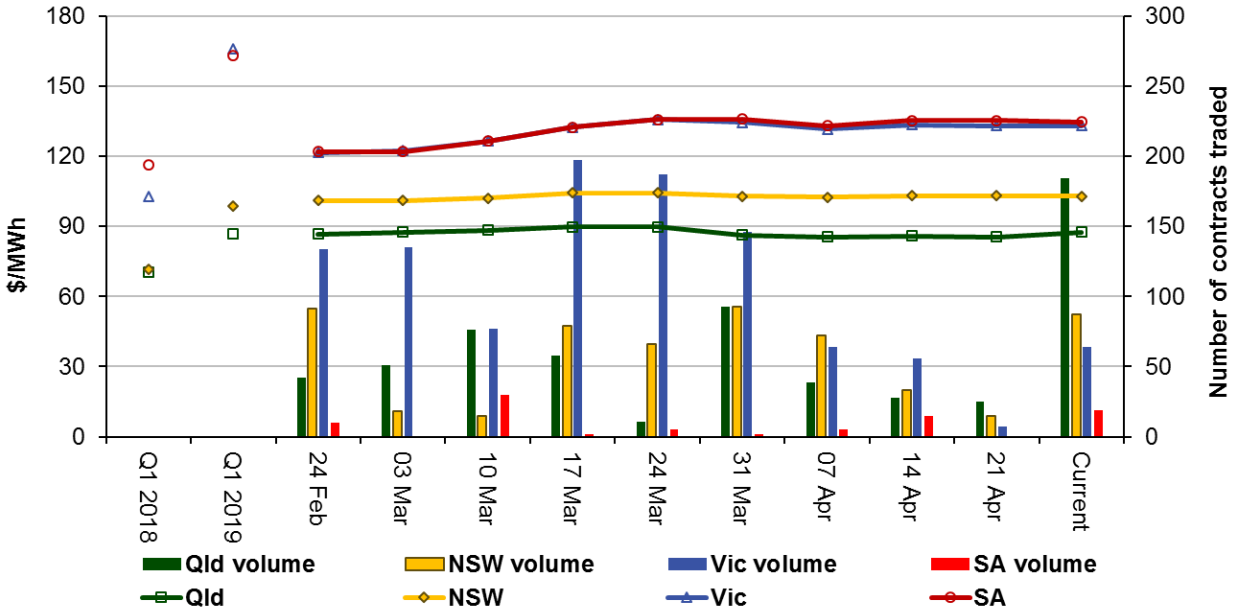
Figure 9: Quarterly base future prices Q2 2019 – Q1 2023



Source. ASXEnergy.com.au

Figure 10 shows how the price for each regional Q1 2020 base contract has changed over the last 10 weeks (as well as the total number of trades each week). The closing quarter 1 2018 and quarter 1 2019 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 2020 base contracts over the past 10 weeks (and the past 2 years)



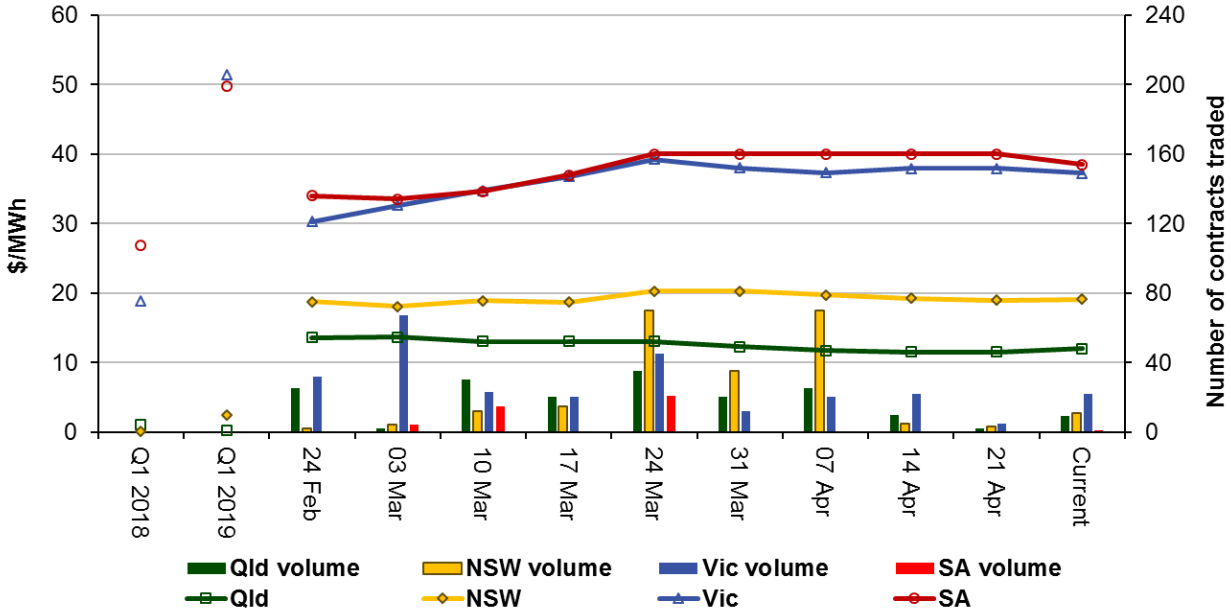
Note. Base contract prices are shown for each of the current week and the previous 9 weeks, with average prices shown for periods 1 and 2 years prior to the current year.

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 2020 cap contract has changed over the last 10 weeks (as well as the total number of trades each week). The closing quarter 1 2018 and quarter 1 2019 prices are also shown.

Figure 11: Price of Q1 2019 cap contracts over the past 10 weeks (and the past 2 years)



Source. ASXEnergy.com.au

Australian Energy Regulator
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