

10 – 16 February 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 10 to 16 February 2019.

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

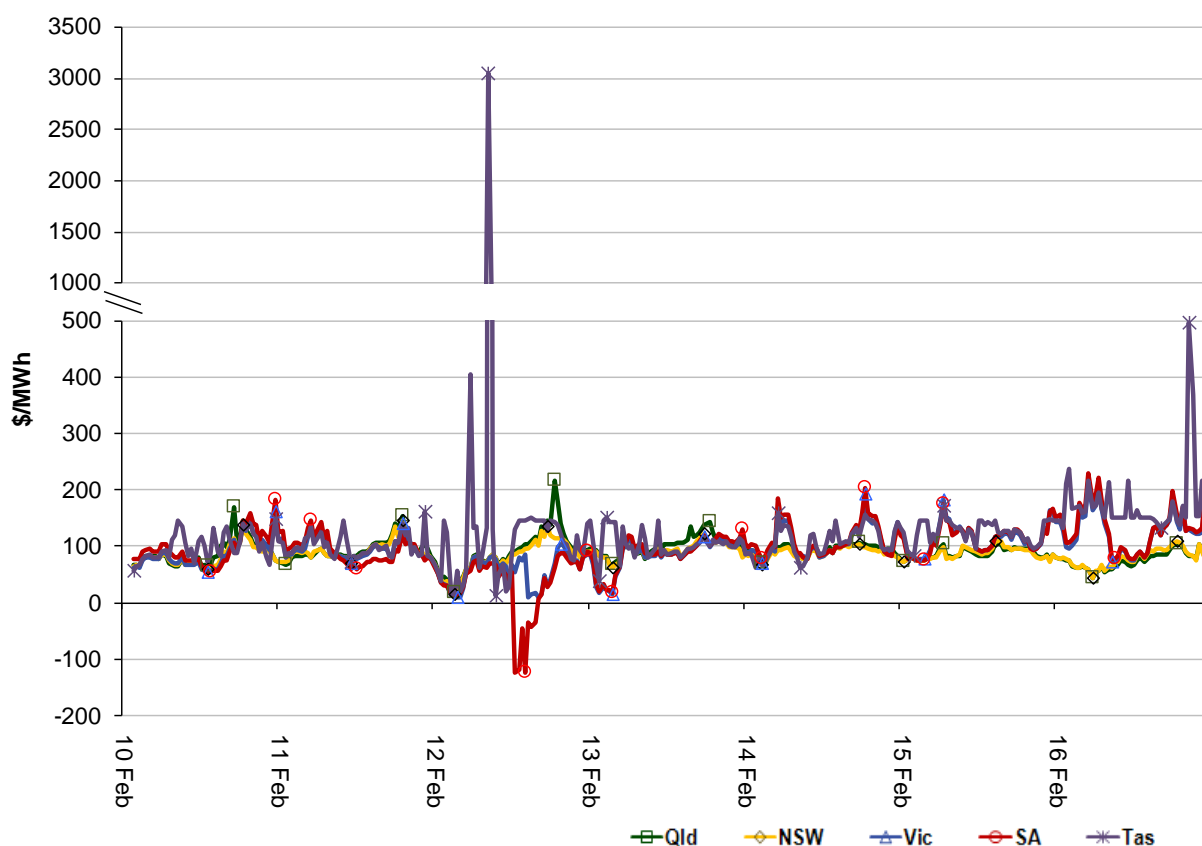


Figure 2 shows the volume weighted average (VWA) prices for the current week (with prices shown in Table 1) and the preceding 12 weeks, as well as the VWA price over the previous 3 financial years.

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

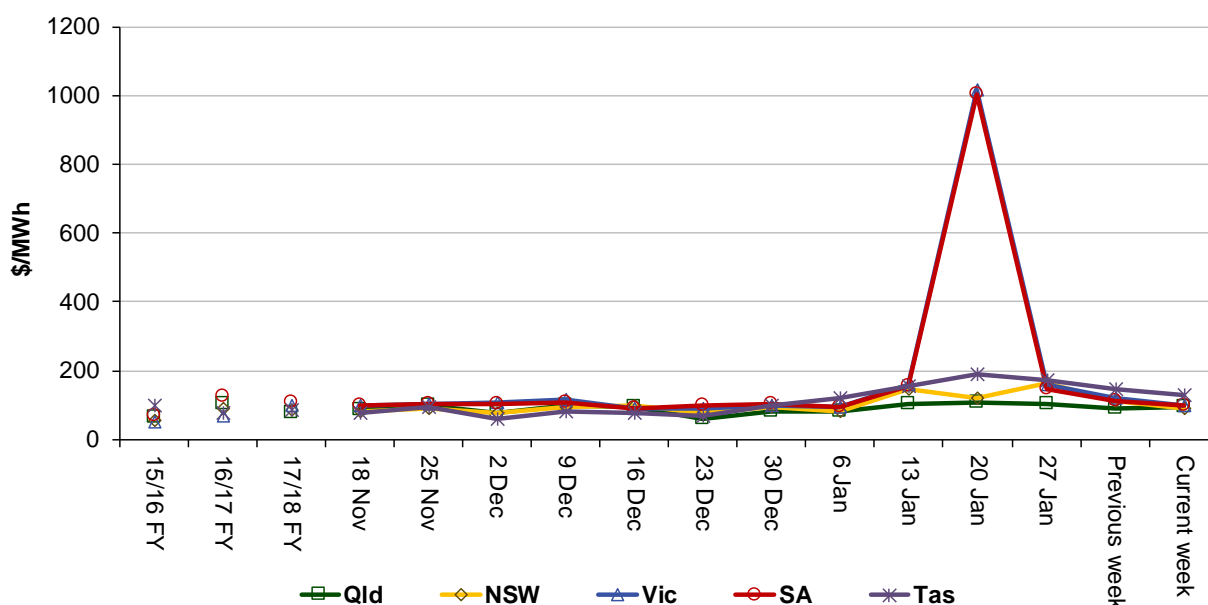


Table 1: Volume weighted average spot prices by region (\$/MWh)

Region	Qld	NSW	Vic	SA	Tas
Current week	92	88	97	98	127
17-18 financial YTD	77	86	108	117	92
18-19 financial YTD	85	96	129	138	78

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 225 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	13	16	1	3
% of total below forecast	8	55	0	4

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

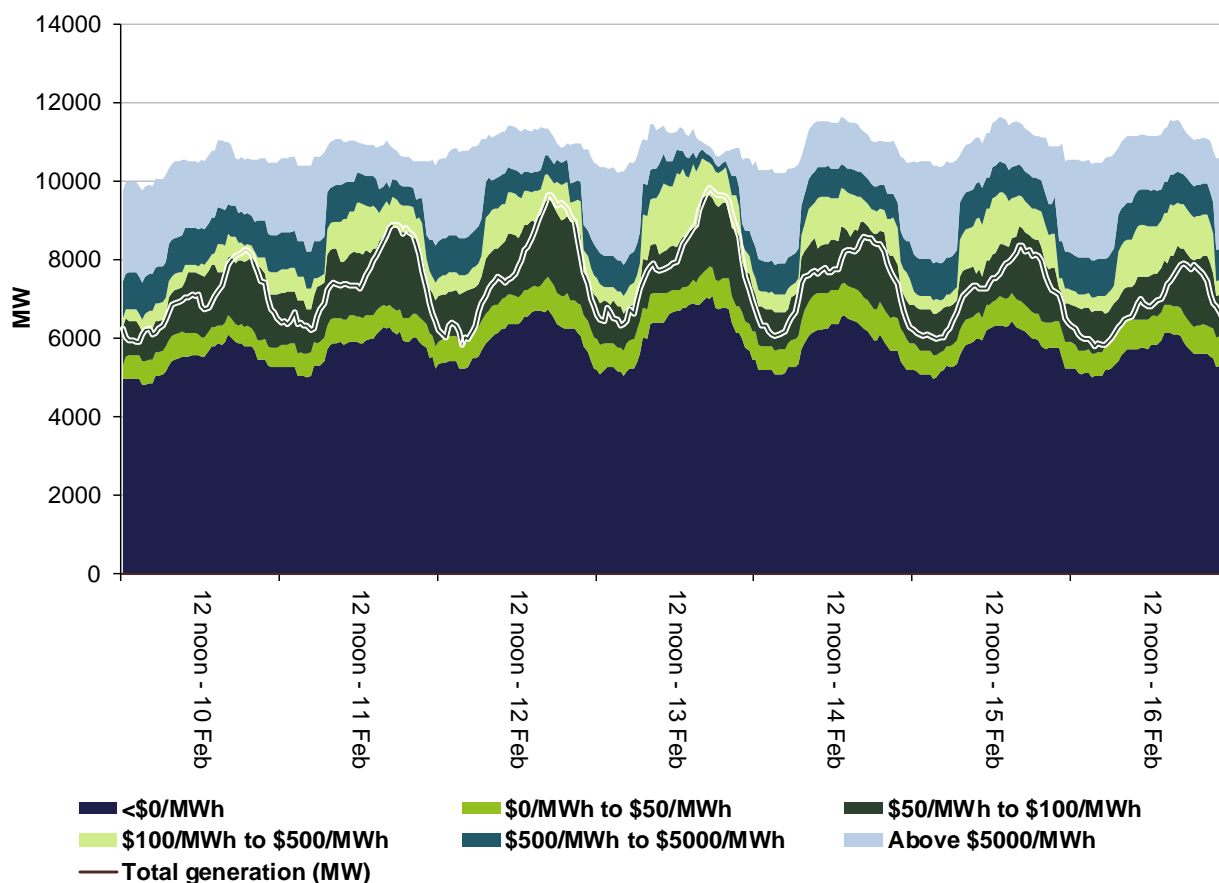


Figure 4: New South Wales generation and bidding patterns

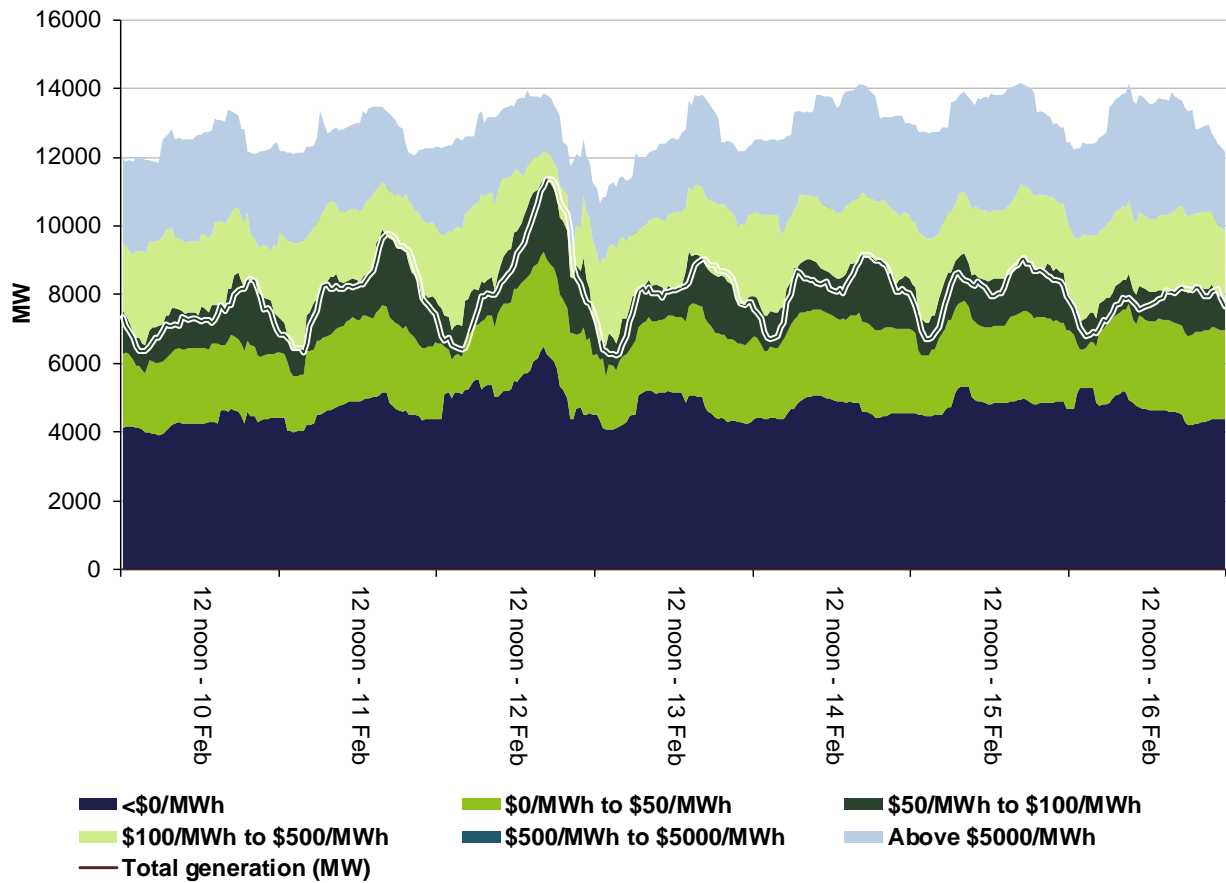


Figure 5: Victoria generation and bidding patterns

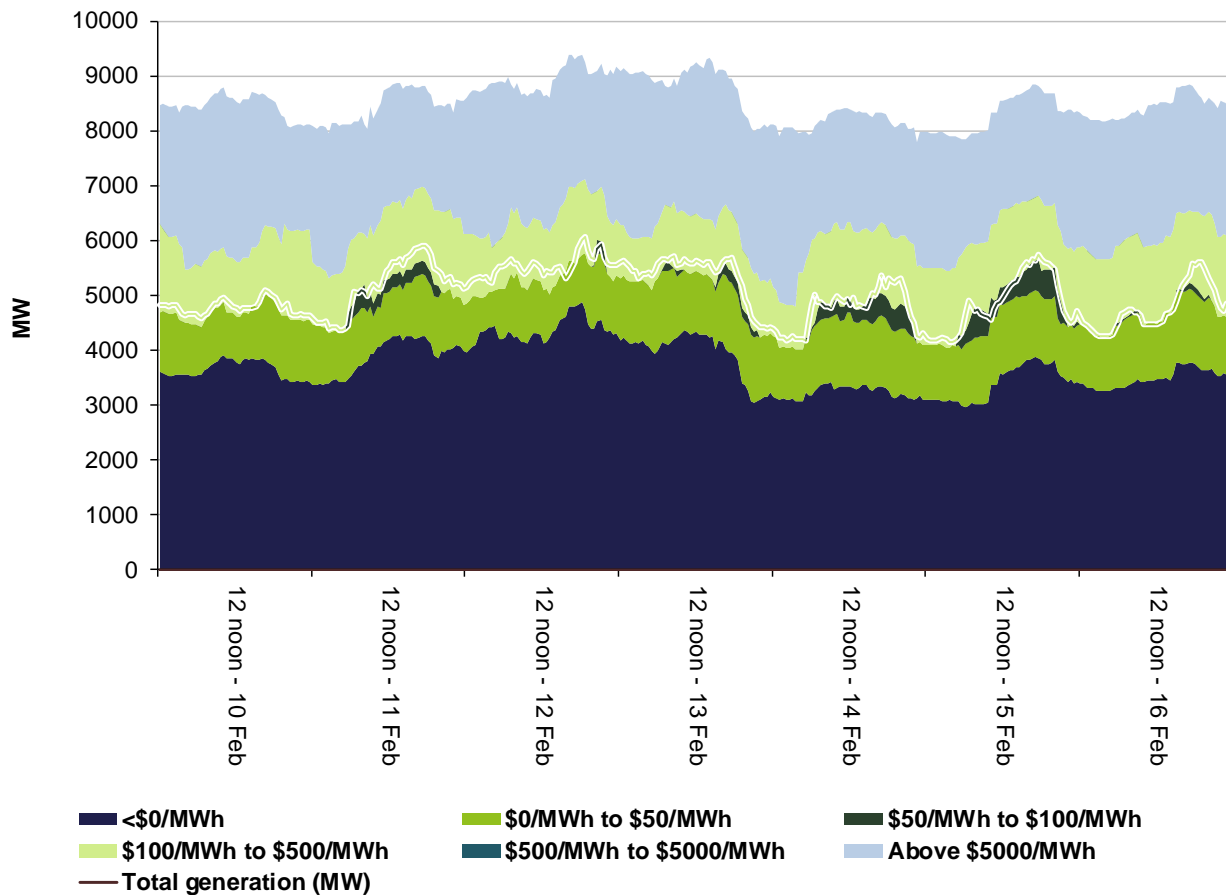


Figure 6: South Australia generation and bidding patterns

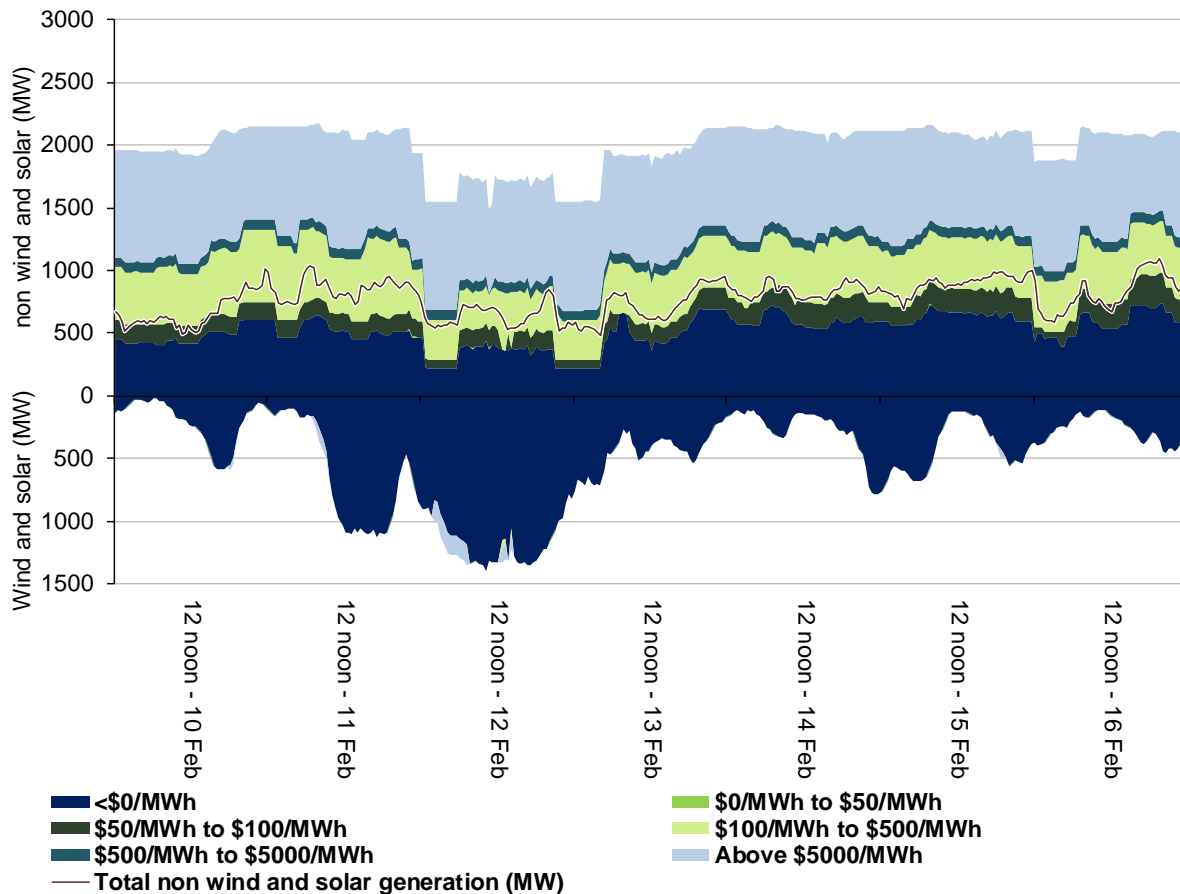
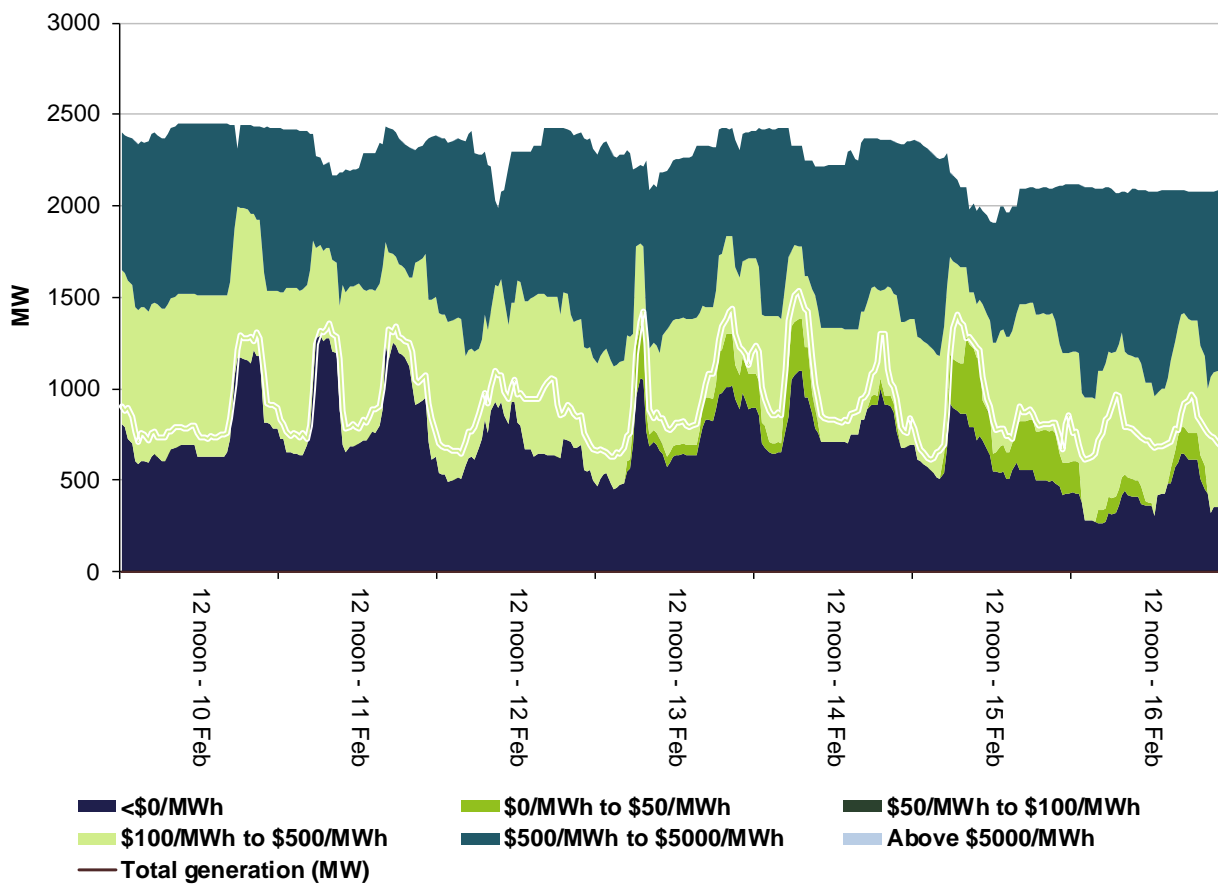


Figure 7: Tasmania generation and bidding patterns



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.

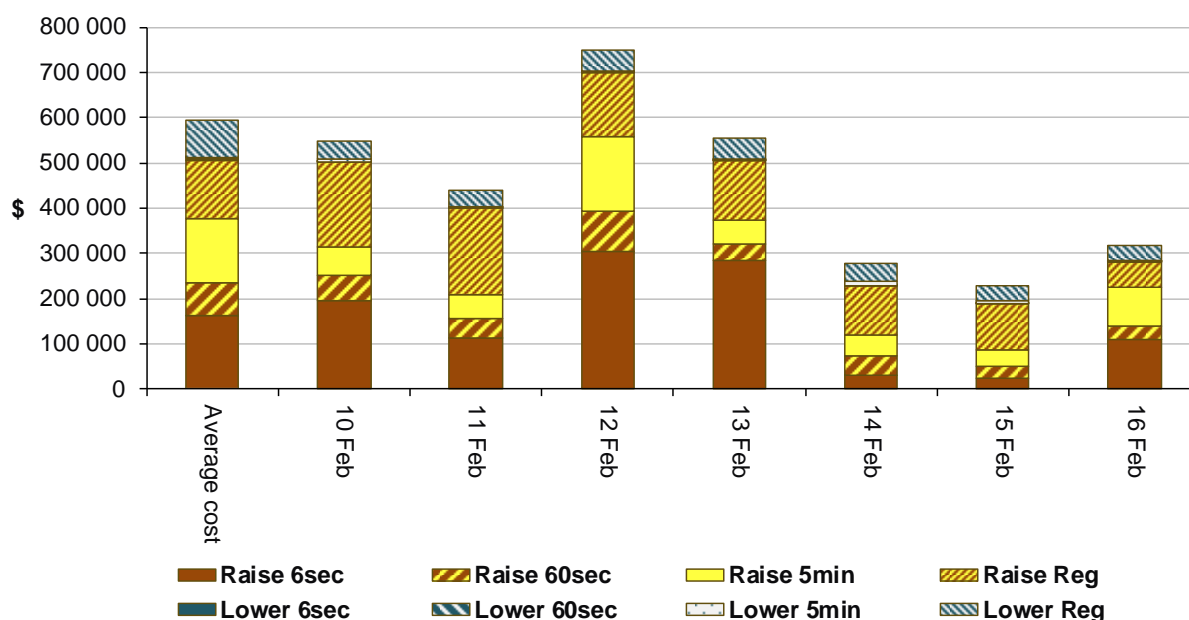
The Electricity Rules stipulate that generators pay for raise contingency services and customers pay for lower contingency services. Regulation services are paid for on a “causer pays” basis determined every four weeks by AEMO.

The total cost of FCAS on the mainland for the week was \$1 899 500 or less than 1 per cent of energy turnover on the mainland.

The total cost of FCAS in Tasmania for the week was \$1 214 500 or less than 6 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 three occasions where the spot price in South Australia was below -\$100/MWh.

Tuesday, 12 February

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
1 pm	-123.22	-1000.00	72.31	960	951	1033	3050	2973	3001
1.30 pm	-117.80	-1000.00	64.52	883	910	1001	3024	2994	3004

Prices were higher than forecast four hours ahead. This was due to rebidding; participants shifted around 600 MW of capacity from -\$1000/MWh to above -\$45/MWh. See Table 4 and Table for further detail on the rebids.

Table 4: Significant rebids for 1 pm

Submitted time	Time effective	Participant	Station	Capacity rebid (MW)	Price from (\$/MWh)	Price to (\$/MWh)	Rebid reason
9.30 am		AGL Energy	Hallett 1 WF	39	-1000	-45	0900~A~050 chg in AEMO PD~54 PD price decrease SA -\$1026 for 12:30
9.30 am		AGL Energy	Hallett 2 WF	18	-1000	-45	0900~A~050 chg in AEMO PD~54 PD price decrease SA -\$1026 for 12:30
9.30 am		AGL Energy	North Brown Hill WF	39	-1000	-45	0900~A~050 chg in AEMO PD~54 PD price decrease SA -\$1026 for 12:30
9.30 am		AGL Energy	The Bluff WF	20	-1000	-45	0900~A~050 chg in AEMO PD~54 PD price decrease SA -\$1026 for 12:30
9.54 am		Trustpower	Snowtown WF	99	-1000	-36	0930 a material change in SA PD for 1130-1630 PD @ 0800 was 56 for 1200 @ 0930 is -1000
12.07 pm		Trustpower	Snowtown WF	99	-36	-1000	1200 A change in SA PD FOR 1230-1300 PD @ 1100 was -45 for 1230 @ 1200 IS 51
12.37 pm	12.45 pm	Infigen	Lake Bonney 2 WF	135	-1000	12879	1230~A~SA price DP@1240 for 1240 1037 lwr thn 5PD@1230 SL~
12.37 pm	12.45 pm	EnergyAustralia	Waterloo WF	130	-1000	500	12:37 ~ A ~ band adj to 5min negative dp ~ SL
12.38 pm	12.45 pm	Hornsedale Power Reserve Pty Ltd	Hornsedale Power Reserve	40	-1000	152	12:35 A low price in dispatch interval

Table 5: Significant rebids for 1.30 pm

Submitted time	Time effective	Participant	Station	Capacity rebid (MW)	Price from (\$/MWh)	Price to (\$/MWh)	Rebid reason
9.30 am		AGL Energy	Hallett 1 WF	39	-1000	-45	0900~A~050 chg in AEMO PD~54 PD price decrease SA -\$1026 for 12:30
9.30 am		AGL Energy	Hallett 2 WF	18	-1000	-45	0900~A~050 chg in AEMO PD~54 PD price decrease SA -\$1026 for 12:30
9.30 am		AGL Energy	North Brown Hill WF	39	-1000	-45	0900~A~050 chg in AEMO PD~54 PD price decrease SA -\$1026 for 12:30

Submitted time	Time effective	Participant	Station	Capacity rebid (MW)	Price from (\$/MWh)	Price to (\$/MWh)	Rebid reason
9.30 am		AGL Energy	The Bluff WF	20	-1000	-45	0900~A~050 chg in AEMO PD~54 PD price decrease SA -\$1026 for 12:30
9.54 am		Trustpower	Snowtown WF	99	-1000	-36	0930 A material change in SA PD for 1130-1630 PD @ 0800 was 56 for 1200 @ 0930 is -1000
10.08 am		Hornsedale Power Reserve Pty Ltd	Hornsedale Power Reserve	39	-507	-51	10:05 A change in pre dispatch prices
11.06 am		Hornsedale Power Reserve Pty Ltd	Hornsedale Power Reserve	40	-51	-1000	11:05 A change in pre dispatch prices
12.07 pm		Trustpower	Snowtown WF	99	-36	-1000	1200 A change in SA PD for 1230-1300 PD @ 1100 was -45 for 1230 @ 1200 is 51
1.07 pm	1.15 pm	Infigen	Lake Bonney 2 WF	135	-1000	12 879	0106~A~SA price DP@1310 for 1310 955 lwr thn 5PD@1305 SL ~
1.07 pm	1.15 pm	EnergyAustralia	Waterloo WF	130	-1000	500	13:06 ~ A ~ band adj to 5min negative DP ~ SL

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
2.30 pm	-123.72	-45.00	-1000.00	913	889	957	2945	3009	3002

Conditions at the time saw demand close to forecast and availability 64 MW lower than forecast, four hours prior. At 9.30 am AGL rebid 116 MW of capacity across its wind farms from the price floor to -\$45/MWh with the reason related to a fall in forecast prices. This saw forecast prices increase from the price floor to -\$45/MWh.

For the first two dispatch intervals demand fell to below the four hour forecast level and prices fell to the floor at 2.10 pm. In response, participants rebid around 300 MW of capacity from below -\$50/MWh to greater than \$150/MWh and the price stayed around \$75/MWh for the rest of the trading interval.

Tasmania

There were three occasions where the spot price in Tasmania was greater than three times the Tasmania weekly average price of \$127/MWh and above \$250/MWh.

Tuesday, 12 February

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 am	405.09	146.16	146.16	967	969	983	2295	2295	2291
9 am	3047.97	95.27	146.16	1026	1016	1020	2134	2199	2196

For the 6 am trading interval, demand and availability were close to forecast level, four hours prior.

There was little available capacity priced between \$146/MWh and \$538/MWh so small changes in demand saw the price oscillate between \$146/MWh and \$533/MWh.

For the 9 am trading interval, demand was close to forecast and availability was 65 MW lower than forecast, both four hours ahead. At around 8.30 am a series of system normal constraints managing FCAS and a special protection scheme in Tasmania bound or violated. As a result the energy and FCAS markets were co-optimised and the dispatch price reached the price cap of \$14 500/MWh at 8.35 am.

Saturday, 16 February

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
9 pm	495.90	151.36	151.03	1092	1125	1129	2077	2081	2096

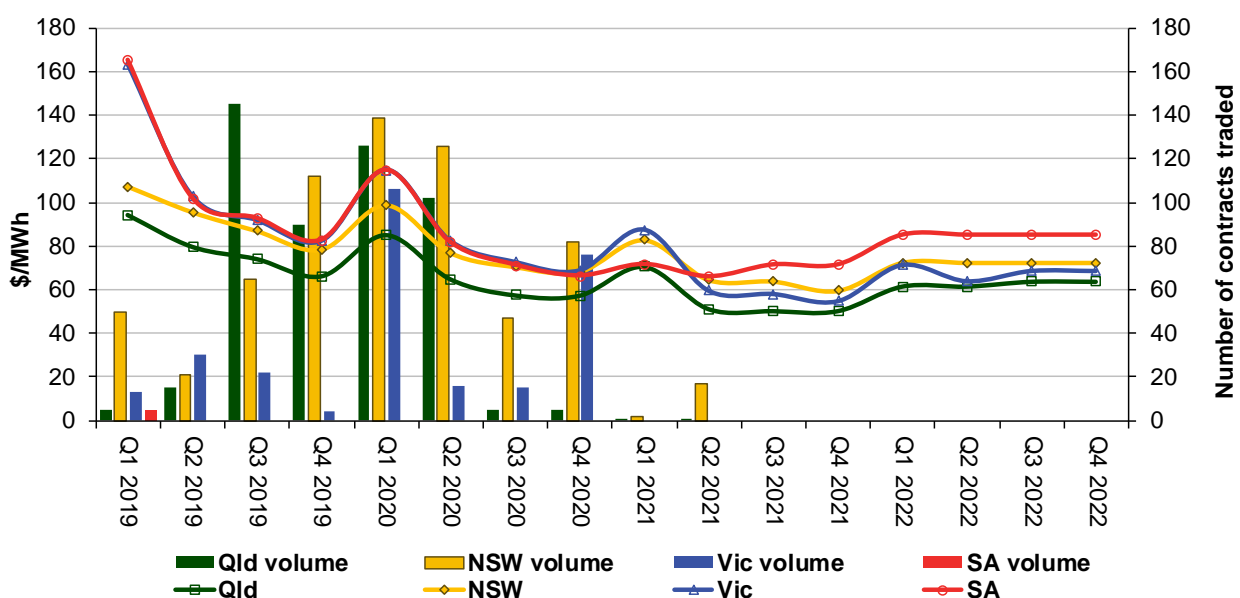
Demand and availability were close to forecast, four hours prior.

At 8.35 pm there was a step change in offers and a series of constraints used to manage FCAS became binding. There was little capacity priced between \$150/MWh and \$538/MWh and the capacity that was there was either trapped in FCAS or ramp up constrained. This saw dispatch prices settle at \$539/MWh for most of the trading interval.

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.

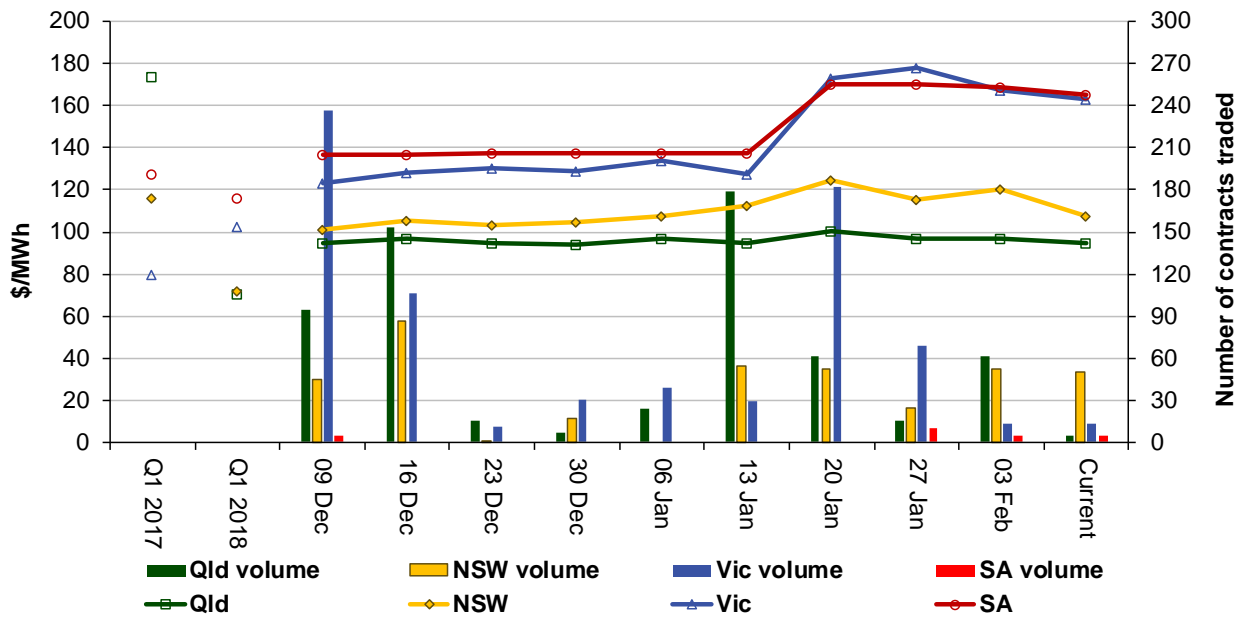
Figure 9: Quarterly base future prices Q1 2019 – Q4 2022



Source. ASXEnergy.com.au

Figure 10 shows how the price for each regional Q1 2019 base contract has changed over the last 10 weeks (as well as the total number of trades each week). The closing quarter 1 2017 and quarter 1 2018 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 2019 base contracts over the past 10 weeks (and the past 2 years)



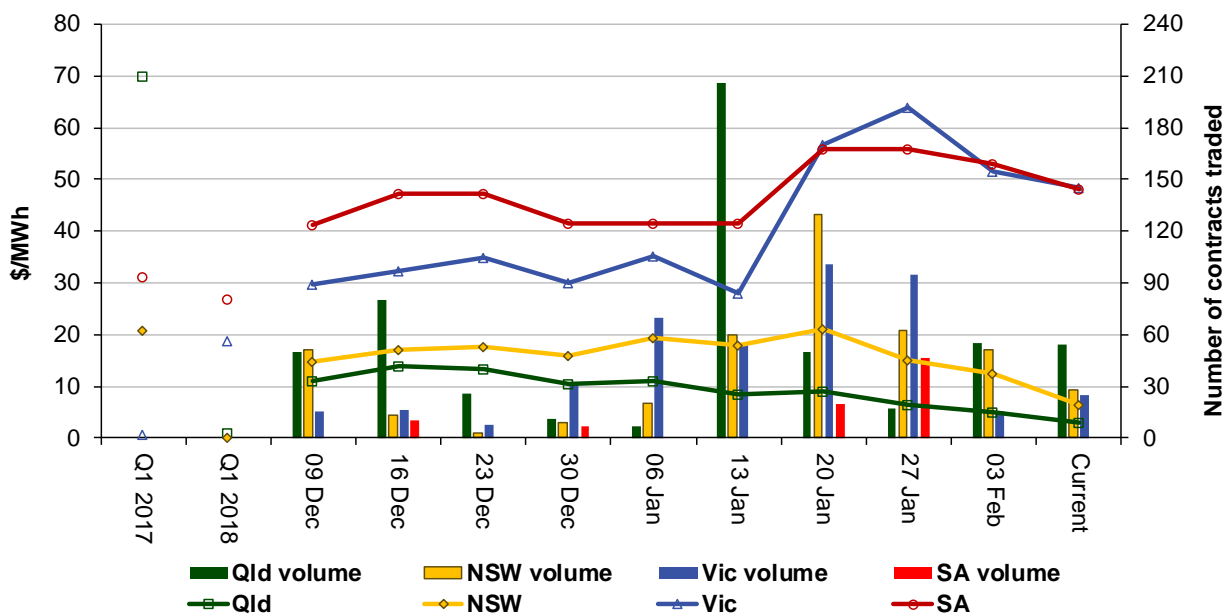
Note. Base contract prices are shown for each of the current week and the previous 9 weeks, with average prices shown for periods 1 and 2 years prior to the current year.

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 2019 cap contract has changed over the last 10 weeks (as well as the total number of trades each week). The closing quarter 1 2017 and quarter 1 2018 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