

## 14 – 20 February 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 14 to 20 February 2016. There were twenty seven occasions where the spot price in Queensland was greater than three times the Queensland weekly average price of \$277/MWh and above \$250/MWh.

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

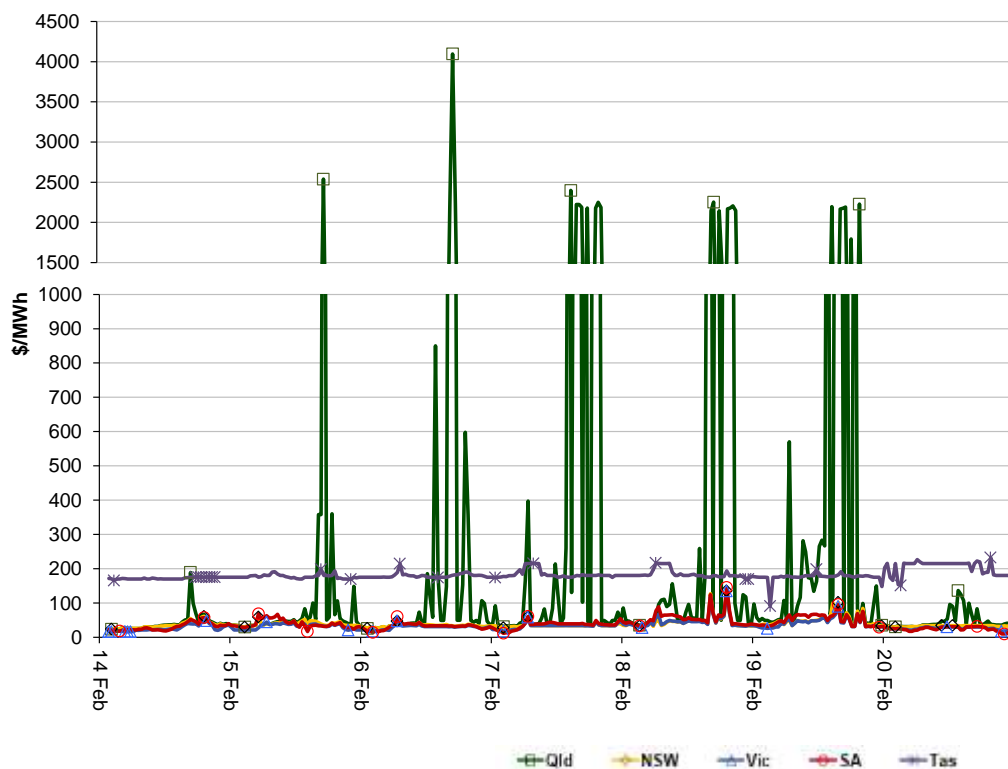
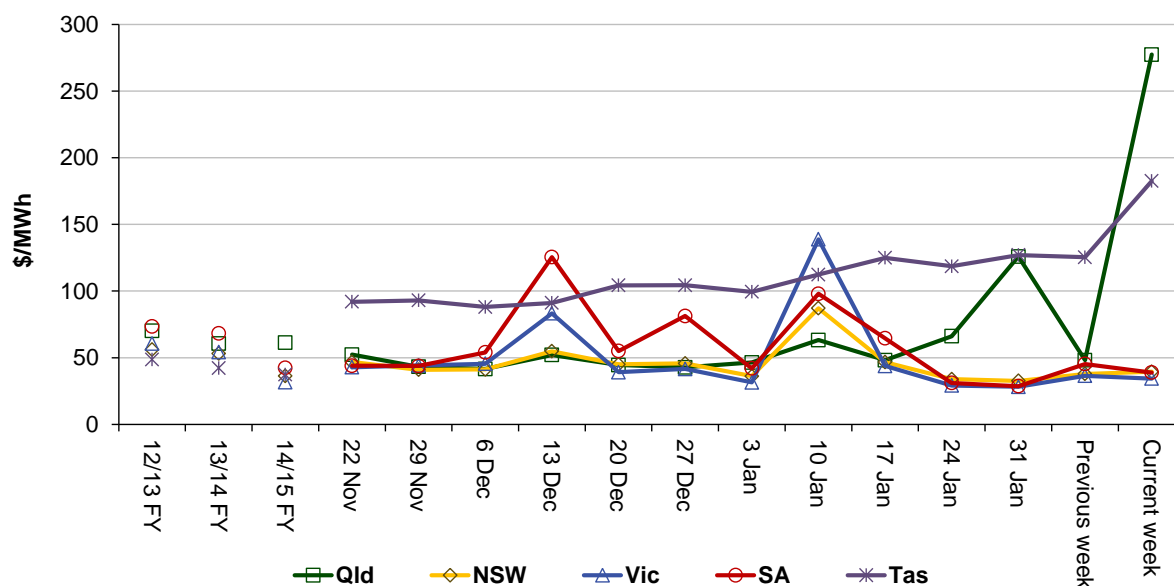


Figure 2 shows the volume weighted average (VWA) prices for the current week (with prices shown in Table 1) and the preceding 12 weeks, as well as the VWA price over the previous 3 financial years.

**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	277	39	34	39	183
14-15 financial YTD	61	37	32	41	38
15-16 financial YTD	57	45	43	61	71

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 280 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**

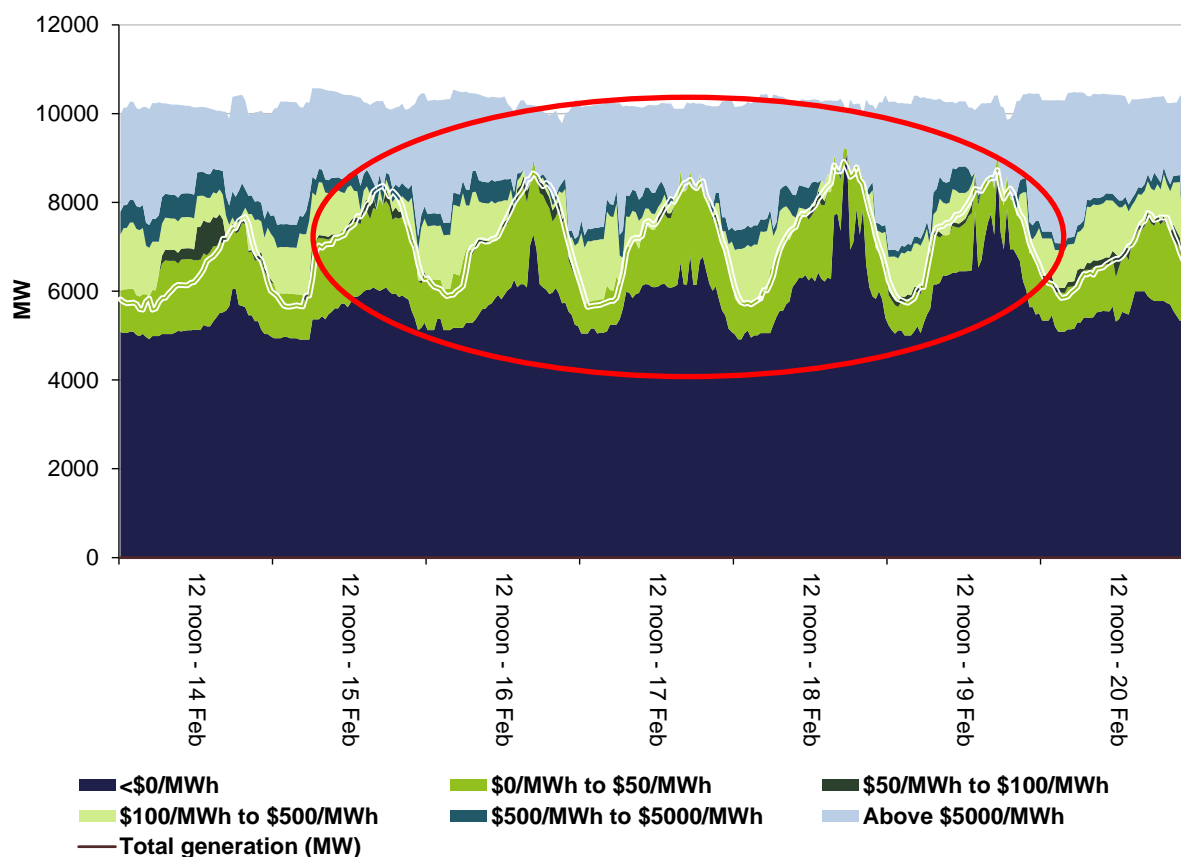
	Availability	Demand	Network	Combination
% of total above forecast	1	28	0	1
% of total below forecast	68	1	0	1

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

## Generation and bidding patterns

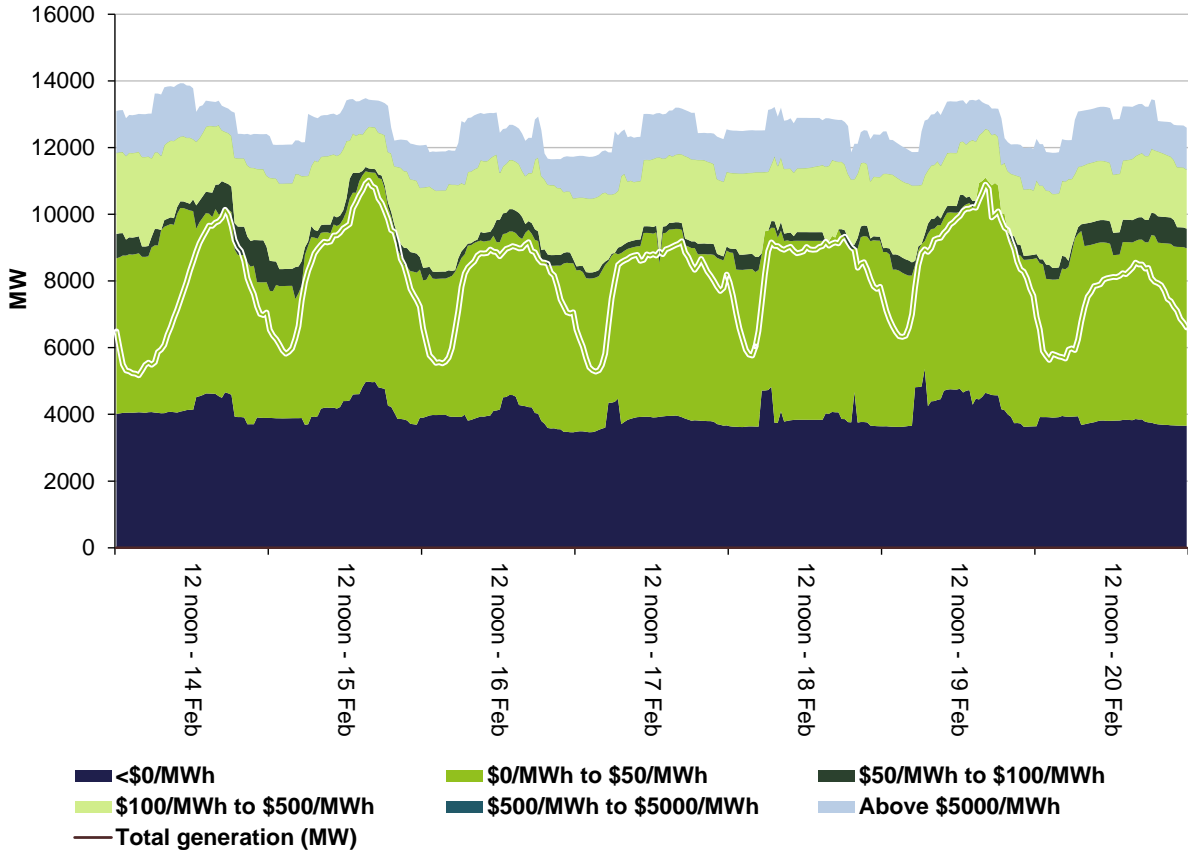
The AER reviews generator bidding as part of its market monitoring to better understand the drivers behind price variations. Figure 3 to Figure 7 show, the total generation dispatched and the amounts of capacity offered within certain price bands for each 30 minute trading interval in each region.

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

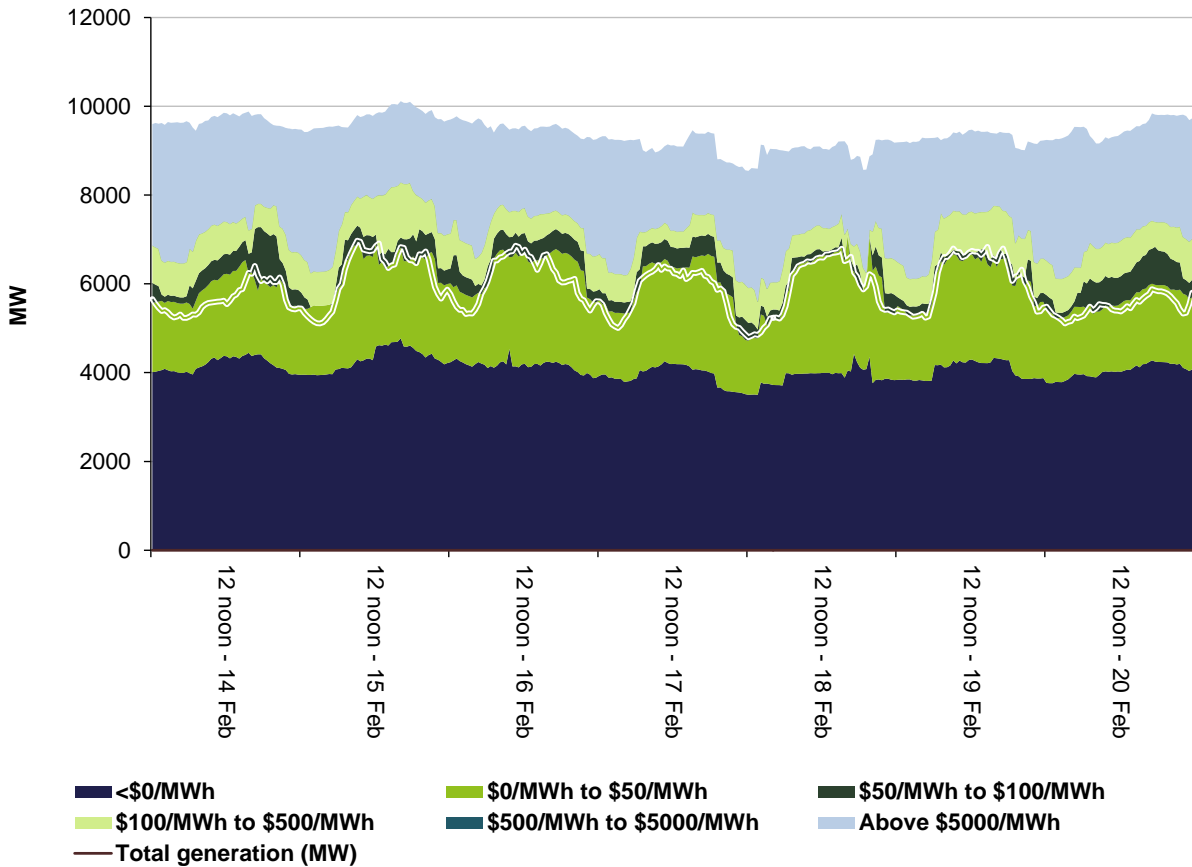


The red ellipse on Figure 3 highlights the periods during the week where repeated rebidding by participants led to high prices. These events are covered in detail in the following sections.

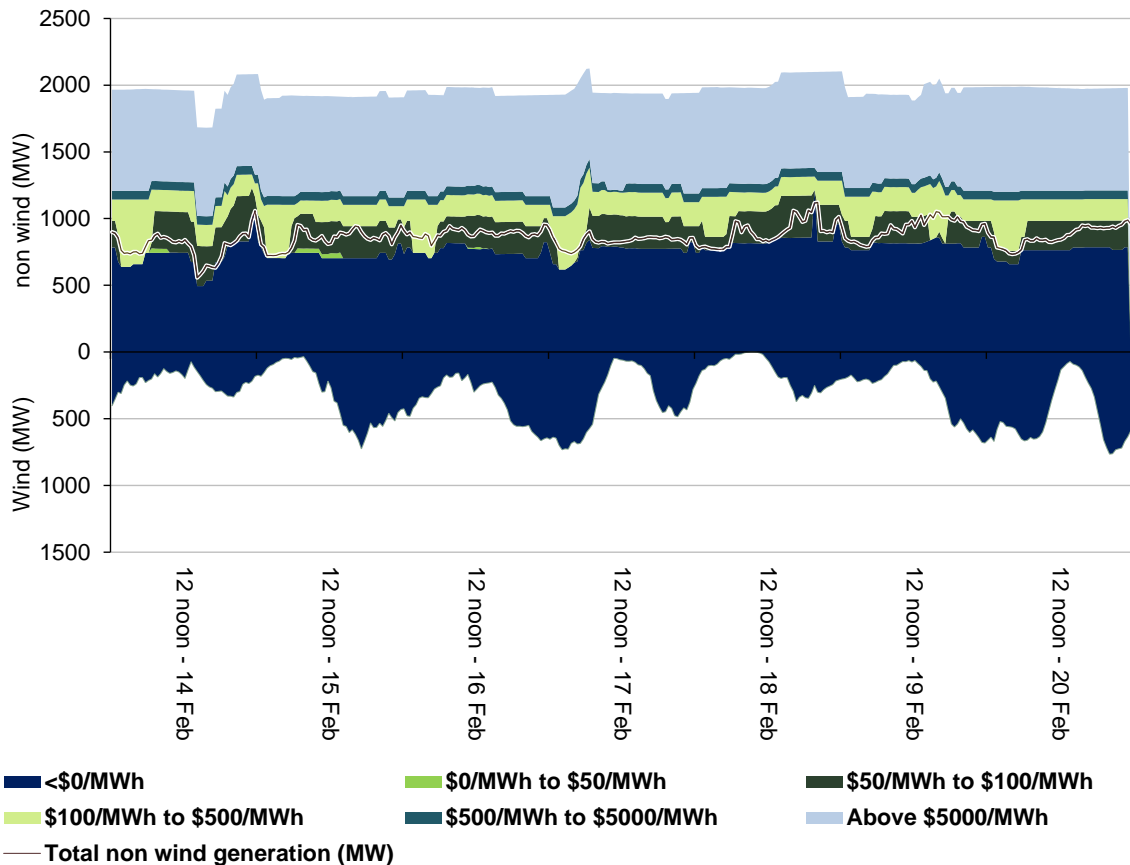
**Figure 4: New South Wales generation and bidding patterns**



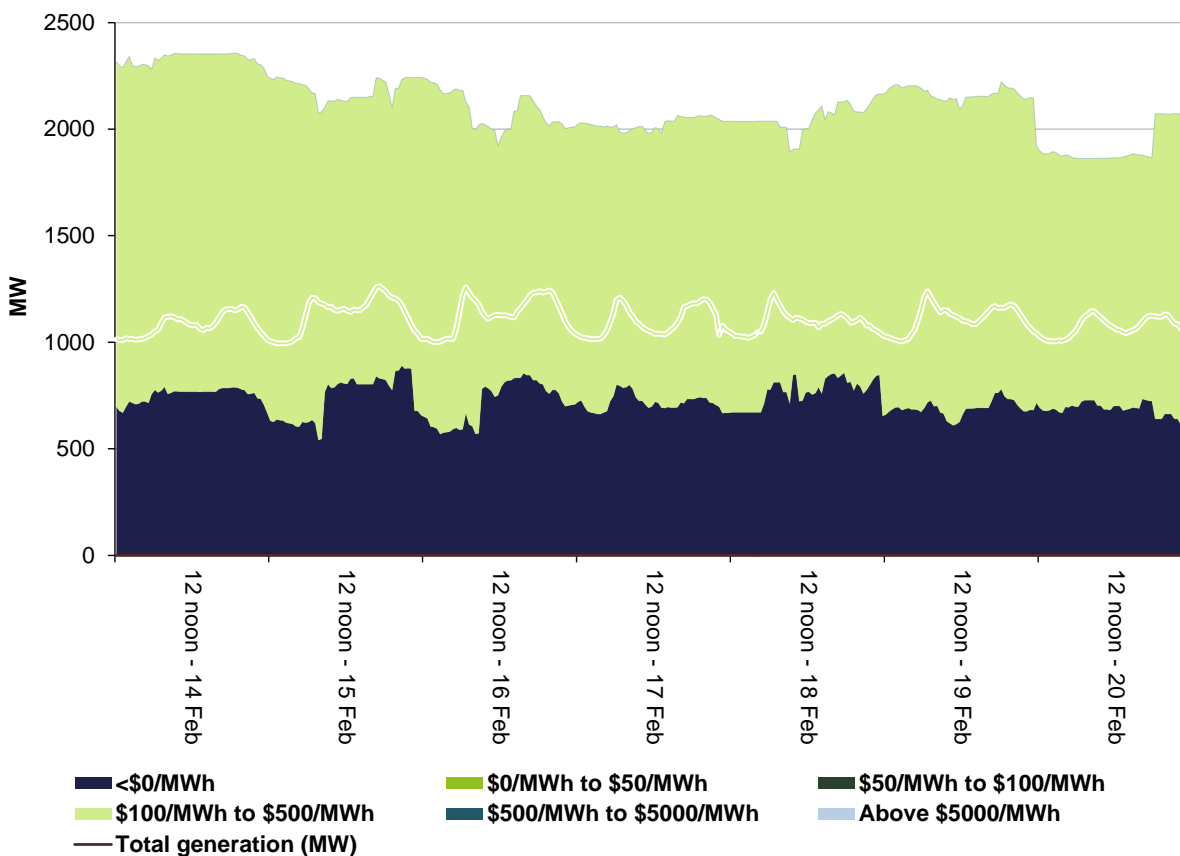
**Figure 5: Victoria generation and bidding patterns**



**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.

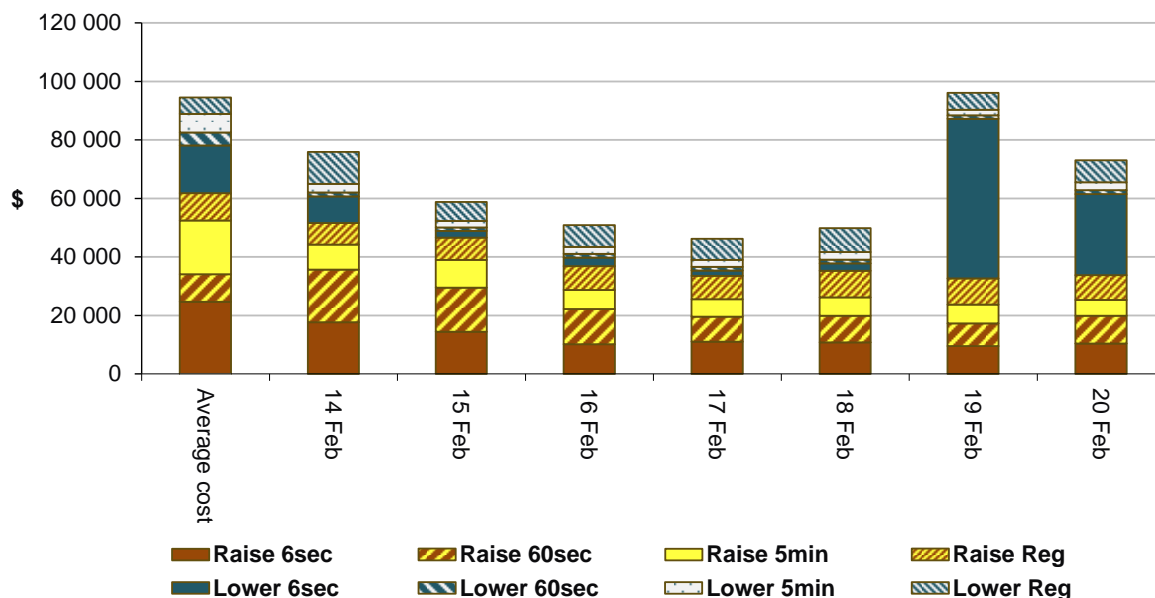
The Electricity Rules stipulate that generators pay for raise contingency services and customers pay for lower contingency services. Regulation services are paid for on a “causer pays” basis determined every four weeks by AEMO.

The total cost of FCAS on the mainland for the week was \$282000 or less than 1 per cent of energy turnover on the mainland.

The total cost of FCAS in Tasmania for the week was \$168500 or less than 1 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 were twenty-seven occasions where the spot price in Queensland was greater than three times the Queensland weekly average price of \$277/MWh and above \$250/MWh.

#### Monday, 15 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
<b>5.30 PM</b>	2537.78	299.91	169.85	8342	8176	8165	10 283	10 358	10 527

Conditions at the time saw demand over 150 MW above both forecasts whilst availability was less than 100 MW below forecast four hours ahead.

**Table 4: Rebids for the 5.30 pm trading interval**

Submitted time	Time effective	Participant	Station	Capacity rebid (MW)	Price from (\$/MWh)	Price to (\$/MWh)	Rebid reason
4.40 pm		Stanwell Corporation	Tarong	180	49	13800	1639A QLD 5 MIN PD PRICE LOWER THAN 30 MIN PD PRICE 1730
5.14 pm	5.25 pm	CS Energy	Gladstone	220	<300	13800	1713A INTERCONNECTOR CONSTRAINT-QNI BINDING-SL
5.22 pm	5.30 pm	Millmerran Energy Trader	Millmerran	80	7	13800	17:21 A RRP ABOVE 5MIN PD FOR DI 17:25
5.23 pm	5.30 pm	Callide Power Trading	Callide C	40	-1000	13800	1722A RRP ABOVE 5MIN PD DI 17:25

With limited generation available between \$60/MWh and \$1300/MWh, the rebids in the table outlined above further reduced the availability of low priced generation. This led to a steep supply curve during this trading interval. As a result of this, the dispatch price increased from \$300/MWh at 5.20 pm to \$1400/MWh at 5.25 pm, and then \$12 888/MWh at 5.30 pm.

#### Tuesday, 16 February

**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
<b>2 PM</b>	849.77	49.00	199.49	8076	7890	8088	10 129	10 328	10 517

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
<b>4.30 PM</b>	2187.18	1399.62	1399.60	8544	8431	8552	10 197	10 403	10 497
<b>5 PM</b>	4095.99	1399.65	1399.65	8634	8542	8619	10 190	10 436	10 505
<b>5.30 PM</b>	2237.34	1399.65	345.72	8549	8446	8416	10 188	10 298	10 490

For the 2 pm trading interval demand was 200 MW greater than forecast four hours ahead. During the remaining high prices demand was approximately 100 MW above forecast four hours ahead.

Aside from the 5.30 pm trading interval, availability was approximately 200 MW below forecast. For the 5.30 pm trading interval, availability was 100 MW below forecast four hours ahead.

Prices were forecast to be high for the majority of the above intervals four hours ahead. During this period there was limited available capacity priced between \$60/MWh and \$1300/MWh, this resulted in a consistently steep supply curve during these high prices.

**Table 6: Rebids for the 2 pm trading interval**

Submitted time	Time effective	Participant	Station	Capacity rebid (MW)	Price from (\$/MWh)	Price to (\$/MWh)	Rebid reason
1.37 pm	1.45 pm	CS Energy	Gladstone	160	<300	13 800	1336A INTERCONNECTOR CONSTRAINT-QNI BINDING NORTH-SL
1.41 pm	1.50 pm	Callide Power Trading	Callide C	120	-1000	13 800	1339A RRP ABOVE 5MIN PD FOR DI 1340
1.47 pm	1.55 pm	Millmerran Energy Trader	Millmerran	31	7	13 800	13:43 A RRP ABOVE 5MIN PD FOR DI 13:50
1.49 pm	2.00 pm	Origin Energy	Mt Stuart	140	13 800	-1000	1347A CONSTRAINT MANAGEMENT - N^Q_NIL_B1 SL
1.52 pm	2.00 pm	Callide Power Trading	Callide C	-106	<13 800	N/A	1351P A MILL TRIP FEEDER CPU ABNORMAL.

Dispatch prices remained above \$200/MWh for the duration of the 2 pm trading interval. As a result of the rebidding outlined in Table 6, and with cheaper generation fully dispatched, the dispatch price rose from \$400/MWh at 1.45 pm to \$1400/MWh at 1.50 pm. The price remained at this level for the remainder of the trading interval.

**Table 7: Rebids for the 4.30 pm trading interval**

Submitted time	Time effective	Participant	Station	Capacity rebid (MW)	Price from (\$/MWh)	Price to (\$/MWh)	Rebid reason
4.07 pm	4.15 pm	CS Energy	Gladstone	160	<300	13 800	1607A INTERCONNECTOR CONSTRAINT-QNI BINDING NORTH-SL



As a result of the rebidding and a 70 MW reduction in imports, the dispatch price rose from \$50/MWh at 4.10 pm to \$12 888/MWh at 4.15 pm. Prices returned to previous levels for the remainder of the trading interval when ERM Power and Arrow Energy rebid capacity from high to low prices.

**Table 8: Rebids for the 5 pm trading interval**

Submitted time	Time effective	Participant	Station	Capacity rebid (MW)	Price from (\$/MWh)	Price to (\$/MWh)	Rebid reason
3.37 pm		Callide Power Trading	Callide C	46	-1000	13 800	1536A DEMAND HIGHER THAN 5MIN PD FOR DI 1540
4.26 pm	4.35 pm	CS Energy	Gladstone	120	<300	13 800	1625A INTERCONNECTOR CONSTRAINT-QNI BINDING NORTH-SL
4.32 pm	4.40 pm	Arrow Energy	Braemar 2	72	>12 947	-1000	1630A QLD PRICE HIGHER THAN FORECAST SL

As a result of the rebids outlined in Table 8, and with cheaper generation fully dispatched or ramp rate limited, the dispatch price rose from \$50/MWh at 4.30 pm to \$12 888/MWh at 4.35 pm. At 4.40 pm when Arrow Energy's rebid became effective the price dropped to \$50/MWh. At 4.45 pm a 25 MW demand increase saw the dispatch price increase to \$11 530/MWh.

**Table 9: Rebids for the 5.30 pm trading interval**

Submitted time	Time effective	Participant	Station	Capacity rebid (MW)	Price from (\$/MWh)	Price to (\$/MWh)	Rebid reason
5.02 pm	5.10 pm	CS Energy	Gladstone	160	<300	13800	1701A INTERCONNECTOR CONSTRAINT-QNI BINDING NORTH IN PD-SL
5.03 pm	5.10 pm	Millmerran Energy Trader	Millmerran	50	7	13800	17:02 A \$150.60/MWH CHANGE IN 5MIN PD RRP DI 17:10 RUNS 1700/05
5.04 pm	5.15 pm	Callide Power Trading	Callide C	40	-1000	13800	1702A 150.60/MWH CHANGE IN 5MIN PD RRP FOR DI 17:10 RUNS 1700/05
5.05 pm	5.15 pm	Stanwell Corporation	Tarong	75	13800	49	1659F REVISED CONTRACT POSITION

As a result of the rebids outlined in Table 9, and with cheaper generation fully dispatched or ramp rate limited, the dispatch price rose from \$38/MWh at 5.05 pm to \$389/MWh at 5.10 pm, and then to \$12 888/MWh at 5.15 pm. The price then fell back to \$36/MWh for the remainder of the trading interval as a result of increased imports into Queensland and rebidding of around 220 MW of capacity from high to low prices, often citing unexpected high price as the reason.

Wednesday, 17 February

**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
<b>2.30 PM</b>	2397.94	50.24	350.11	8241	8060	7991	10 230	10 228	10 326
<b>3.30 PM</b>	2223.34	49.5	299.91	8232	8117	8044	10 109	10 153	10 320
<b>4.00 PM</b>	2222.4	389.68	350.11	8293	8265	8123	10 109	10 153	10 321
<b>4.30 PM</b>	2187.36	389.68	350.11	8455	8308	8164	10 120	10 178	10 321
<b>5.30 PM</b>	2178.03	389.68	350.11	8443	8270	8134	10 235	10 254	10 328
<b>7.00 PM</b>	2177.44	49.5	49.5	8355	8135	8009	10 224	10 274	10 329
<b>7.30 PM</b>	2249.6	49	49	8328	8118	7991	10 216	10 247	10 323
<b>8.00 PM</b>	2187.13	49	43.65	8156	7938	7875	10 185	10 249	10 337

Conditions during this period saw demand up to 200 MW above forecast four hours ahead. Availability was close to forecast four hours ahead.

With limited available capacity priced between \$60/MWh and \$1300/MWh resulting in a consistently steep supply curve marginal changes in generation requirements led to significant shifts in dispatch prices.

**Table 11: Rebids for the 2.30 pm trading interval**

Submitted time	Time effective	Participant	Station	Capacity rebid (MW)	Price from (\$/MWh)	Price to (\$/MWh)	Rebid reason
12.31 pm		CS Energy	Gladstone	70	<50	13 800	1230P PORTFOLIO REARRANGEMENT DUE TO-CALLIDE RESTRICTIONS-SL
1.31 pm		Stanwell Corporation	Tarong	90	60	13 800	1327A QLD SPOT PRICE GREATER THAN FORECAST SL
2.21 pm	2.30 pm	Millmerran Energy Trader	Millmerran	60	7	13 800	14:20 A CHANGE IN 5MPD DEMAND - SL
2.22 pm	2.30 pm	Callide Power Trading	Callide C	40	-1000	13 800	1421A CHANGE IN 5MPD DEMAND - SL

For the majority of the trading interval prices remained at \$300/MWh. As a result of the rebids outlined in Table 11 and with cheaper generation fully dispatched, the dispatch price rose from \$300/MWh at 2.25 pm to \$12 888/MWh at 2.30 pm.

**Table 12: Rebids for the 3.30 pm and 4 pm trading interval**

Submitted time	Time effective	Participant	Station	Capacity rebid (MW)	Price from (\$/MWh)	Price to (\$/MWh)	Rebid reason
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Submitted time	Time effective	Participant	Station	Capacity rebid (MW)	Price from (\$/MWh)	Price to (\$/MWh)	Rebid reason
11.46 am		Callide Power Trading	Callide C	56	-1000	13 800	1145A RRP ABOVE 5MIN PD FOR DI 1145
11.46 am		Millmerran Energy Trader	Millmerran	55	7	13 800	11:46 A RRP ABOVE 5MIN PD FOR DI 1145
2.16 pm		Origin Energy	Mt Stuart	136	<60	13 800	1414A CONSTRAINT MANAGEMENT - N>>N-NIL__3_OPENED SL
2.27 pm		AGL Energy	Yabulu	72	2149	13 186	1425~A~040 CHG IN AEMO DISP~45 PRICE INCREASE VS PD QLD \$12888.65 VS \$300.20
2.48 pm		CS Energy	Gladstone	40	13 800	<36	1447A DISPATCH PRICE HIGHER THAN 5MIN FORECAST-SL
3.14 pm	3.25 pm	Origin Energy	Mt Stuart	45	13 800	-1000	1510A INC QLD DEM 5PD 8313 MW > 30PD 8290 MW @ 1510 SL
3.20 pm	3.30 pm	Millmerran Energy Trader	Millmerran	60	7	13 800	15:18 A CHANGE IN 5MPD RRP - SL
3.20 pm	3.30 pm	Callide Power Trading	Callide C	40	-1000	13 800	1518A CHANGE IN 5MPD RRP - SL
3.22 pm	3.30 pm	AGL Energy	Yabulu	8	13 186	0	1520~A~050 CHG IN AEMO PD~56 PRICE DECREASE QLD \$38.20 VS \$301.49 5MPD VS PD

As a result of the rebids outlined in Table 12, and with cheaper generation fully dispatched or stranded in FCAS, following a 90 MW increase in demand the dispatch price rose from \$38/MWh at 3.25 pm to \$12 888/MWh at 3.30 pm.

In the 4 pm trading interval, QNI flows were, on average, 80 MW below forecast 30 minutes prior to the trading interval. With cheaper priced generation fully dispatched or stranded in FCAS, following a 100 MW increase in demand the dispatch price rose from \$38/MWh at 3.45 pm to \$12 888/MWh at 3.50 pm. Rebidding did not significantly contribute to the high price. The dispatch price returned to around \$35/MWh for the remainder of the trading interval following rebidding of capacity from high to low prices.

**Table 13: Rebids for the 4.30 pm trading interval**

Submitted time	Time effective	Participant	Station	Capacity rebid (MW)	Price from (\$/MWh)	Price to (\$/MWh)	Rebid reason
4.22 pm	4.30 pm	Millmerran Energy Trader	Millmerran	60	7	13 800	16:21 A CHANGE IN 5MPD DEMAND - SL
4.23 pm	4.30 pm	Callide Power Trading	Callide C	44	-1000	13 800	1622A 160 MW CHANGE IN 5MPD DEMAND DI 16:30 RUNS 1605/1610

As a result of the rebids outlined in the above table with cheaper generation fully dispatched, the dispatch price rose from \$49/MWh at 4.25 pm to \$12 888/MWh at 4.30 pm.

**Table 14: Rebids for the 5.30 pm trading interval**

Submitted time	Time effective	Participant	Station	Capacity rebid (MW)	Price from (\$/MWh)	Price to (\$/MWh)	Rebid reason
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Submitted time	Time effective	Participant	Station	Capacity rebid (MW)	Price from (\$/MWh)	Price to (\$/MWh)	Rebid reason
4.28 pm		CS Energy	Gladstone	15	300	13 800	1627A DISPATCH PRICE HIGHER THAN 30MIN FORECAST-SL
4.37 pm		CS Energy	Gladstone	30	300	13 800	1636A INTERCONNECTOR CONSTRAINT-MATERIAL CHANGE IN QNI LIMITS-SL
4.50 pm		Millmerran Energy Trader	Millmerran	60	7	13 800	16:50 A CHANGE IN 5MPD DEMAND - SL
4.52 pm		Callide Power Trading	Callide C	42	-1000	13 800	1650A 234 MW CHANGE IN 5MPD DEMAND DI 17:00 RUNS 1635/50

As a result of the rebids outlined in Table 14 the dispatch price rose from \$390/MWh at 5 pm to \$12 888/MWh at 5.05 pm. For the following dispatch interval, a number of participants shifted a total of 350 MW of capacity from the price cap to the price floor leading to prices returning to approximately \$36/MWh for the remainder of the trading interval.

**Table 15: Rebids for the 7 pm trading interval**

Submitted time	Time effective	Participant	Station	Capacity rebid (MW)	Price from (\$/MWh)	Price to (\$/MWh)	Rebid reason
5.54 pm		RTA Yarwun	Yarwun	-40	-971	N/A	ALUMINA REFINERY CONSTRAINTS
6.25 pm	6.35 pm	Millmerran Energy Trader	Millmerran	50	7	13 800	18:23 A CHANGE IN PD PRICE - SL
6.25 pm	6.35 pm	Callide Power Trading	Callide C	40	-1000	13 800	1820A CHANGE IN PD PRICE - SL

As a result of the rebids outlined in Table 15, and with cheaper generation fully dispatched or ramp rate limited, the dispatch price rose from \$38/MWh at 6.30 pm to \$12 888/MWh at 6.35 pm. For the following dispatch interval, Braemar and Callide C shifted 150 MW of available capacity from the price cap to the price floor leading to prices returning to around \$35/MWh for the remainder of the trading interval.

**Table 16: Rebids for the 7.30 pm trading interval**

Submitted time	Time effective	Participant	Station	Capacity rebid (MW)	Price from (\$/MWh)	Price to (\$/MWh)	Rebid reason
7.01 pm	7.10 pm	Callide Power Trading	Callide C	40	-1000	13 800	1856A CHANGE IN WIVENHOE GEN - SL
7.02 pm	7.10 pm	Millmerran Energy Trader	Millmerran	50	7	13 800	19:02 A CHANGE IN WIVENHOE GEN - SL
7.08 pm	7.15 pm	CS Energy	Gladstone	105	<300	13 800	1907A INTERCONNECTOR CONSTRAINT-QNI BINDING NORTH-SL

As a result of the rebids outlined in Table 16 the dispatch price rose from \$54/MWh at 7.05 pm to \$390/MWh at 7.10 pm, and then \$12 888/MWh at 7.15 pm. For the following

dispatch interval, a 350 MW reduction in demand and rebidding of capacity by Arrow Energy and ERM Power from high to lower prices resulted in a \$37/MWh price for 7.20 pm. Dispatch prices remained at lower levels for the remainder of the trading interval.

**Table 17: Rebids for the 8 pm trading interval**

Submitted time	Time effective	Participant	Station	Capacity rebid (MW)	Price from (\$/MWh)	Price to (\$/MWh)	Rebid reason
7.08 pm		AGL Energy	Yabulu	67	2149	13 186	1905~A~040 CHG IN AEMO DISP~41 DEMAND INCREASEVS PD QLD 215MW
7.19 pm		Millmerran Energy Trader	Millmerran	50	7	13 800	19:19 A PRICE ABOVE PD - SL
7.23 pm		ERM Power	Oakey	93	390	12 889	1921A CHANGE IN QNI FLOW 5M DISPATCH 59MW VS 30M PD 223MW
7.29 pm	7.40 pm	Callide Power Trading	Callide C	40	-1000	13 800	1928A PRICE ABOVE PD - SL
7.45 pm	7.55 pm	ERM Power	Oakey	15	0	12 889	1944P WATER CONSERVATION - CHANGE OPERATING MODE

As a result of the rebids outlined in Table 17, and with cheaper generation fully dispatched or ramp rate limited, the dispatch price rose from \$49/MWh at 7.50 pm to \$12 888/MWh at 7.55 pm. For the following dispatch interval, ERM Power and AGL Energy shifted approximately 150 MW of available capacity from the price cap to the price floor leading to prices returning to \$37/MWh for the final dispatch interval.

### Thursday, 18 February

Conditions at the time saw demand up to 165 MW greater than forecast four hours ahead. Five of the eight high spot prices were forecast 12 hours ahead, with three being revised up close to the price cap four hours ahead of dispatch and the remaining prices were revised down.

**Table 18: 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
<b>4 PM</b>	2143.4	12 888.65	2148.99	8538	8487	8210	10 296	10 346	10 406
<b>4.30 PM</b>	2251.59	12 888.65	2148.99	8607	8544	8309	10 287	10 351	10 366
<b>5.30 PM</b>	2144.85	12 700.20	2148.99	8533	8493	8208	10 240	10 351	10 364

The prices were lower than that forecast four hours ahead, due to rebidding of capacity from high to low prices, often citing responses to unexpected market volatility and dispatch price greater than the 30 minute forecast price.

**Table 19: Price, Demand and Availability**

Time	Price (\$/MWh)	Demand (MW)	Availability (MW)
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	Actual	4 hr forecast	12 hr forecast	Actual	4 hr forecast	12 hr forecast	Actual	4 hr forecast	12 hr forecast
<b>6 PM</b>	1449.9	49	2148.99	8493	8378	8334	10 046	10 316	10 369

Generator offers created a steep supply curve (with zero capacity priced between \$49/MWh and \$12 700/MWh). Hence minor changes in generation availability and rebidding of capacity from low to high prices saw large changes in the dispatch price. The price increased from zero at 5.30 pm to \$12 700/MWh at 5.35 pm. The price reduced to below \$2/MWh in the following dispatch interval, when around 700 MW of capacity was rebid from high to low prices, often citing unexpected price spike as the reason.

**Table 20: 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
<b>7 PM</b>	2169.32	49.50	2148.99	8547	8383	8385	10 263	10 345	10 397

With a steep supply curve at the time, a 113 MW increase in demand saw a significant increase in price, from \$82/MWh at 6.45 pm to \$12 700/MWh at 6.50 pm. Imports into Queensland were at their limit of 247 MW. The price reduced to below \$35/MWh in the following dispatch interval, when around 330 MW of capacity was rebid from high to low prices, citing unexpected price spike as the reason.

**Table 21: 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
<b>7.30 PM</b>	2178.95	55.04	389.69	8588	8434	8423	10 215	10 345	10 357

With a steep supply curve at the time, a 180 MW increase in demand saw a significant increase in price, from \$330/MWh at 7.05 pm to \$12 700/MWh at 7.10 pm. Imports into Queensland were at their limit of 232 MW. The price reduced to below \$1/MWh in the following dispatch interval, when around 575 MW of capacity was rebid from high to low prices, often citing unexpected price spike as the reason.

**Table 22: 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
<b>8 PM</b>	2206.23	49.50	49.50	8467	8316	8311	10 224	10 392	10 370

With a steep supply curve at the time, a 152 MW of capacity rebid from the price floor to \$12 945/MWh by Alinta Energy contributed to the price increase from \$50/MWh at 7.50 pm to \$12 700/MWh at 7.55 pm. Imports into Queensland were at their combined limit of 254 MW. The price reduced to below \$7/MWh in the following dispatch interval, when around 420 MW of capacity was rebid from high to low prices, often citing unexpected price spike as the reason.

**Table 23: 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
<b>8.30 PM</b>	2146.34	49.50	49.50	8240	8225	8212	9994	10 379	10 378

There was a steep supply at the time with no capacity priced between \$50/MWh and \$12 000/MWh. Therefore small changes in capacity offered at low prices saw a large change in price. The price increased from \$7/MWh at 8 pm to \$12 700/MWh at 8.05 pm. Imports into Queensland were at their limit of a combine 235 MW. The price reduced to below \$40/MWh in the following dispatch interval, when around 400 MW of capacity was rebid from high to low prices, often citing unexpected price spike as the reason.

**Friday, 19 February**

Conditions at the time saw demand up to 219 MW greater than that forecast 12 hours and availability close to forecast.

**Table 24: 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
<b>2 PM</b>	2195.43	61.51	299.91	8211	8122	7992	10 108	10 288	10 468
<b>3.30 PM</b>	2165.70	299.91	389.69	8307	8165	8155	10 232	10 277	10 389
<b>4 PM</b>	2175.45	301.94	2148.99	8402	8287	8221	10 228	10 277	10 339
<b>4.30 PM</b>	2189.68	301.80	2148.99	8434	8389	8317	10 257	10 292	10 319
<b>5.30 PM</b>	1794.65	2148.99	2148.99	8301	8301	8280	10 406	10 281	10 292
<b>7 PM</b>	2227.36	37.07	389.68	8094	8000	8070	9893	10 380	10 298

**Table 25: Rebids for the 2 pm trading interval**

Submit time	Time effective	Participant	Station	Capacity rebid (MW)	Price from (\$/MWh)	Price to (\$/MWh)	Rebid reason
11.10 am		Callide Power Trading	Callide C	46	-1000	13 800	1108A CHANGE IN 5MPD RRP - SL
12.25 pm		CS Energy	Gladstone	-110	<300	N/A	1223P ASHING SYSTEM FAULT-SL
1.31 pm	1.40 pm	CS Energy	Wivenhoe	250	300	13 800	1331A DEMAND HIGHER THAN FORECAST-SL



The rebidding listed in Table 25 created a steep supply curve resulting in the dispatch price increasing from \$300/MWh at 1.35 pm to \$10 137/MWh at 1.40 pm. This coincided with CS Energy's rebid becoming effective. The price reduced to below \$40/MWh in the following dispatch interval, when around 160 MW of capacity was rebid from high to low prices, citing unexpected price spike as the reason.

**Table 26: Rebids for the 3:30 pm trading interval**

Submit time	Time effective	Participant	Station	Capacity rebid (MW)	Price from (\$/MWh)	Price to (\$/MWh)	Rebid reason
12.25 pm		CS Energy	Gladstone	-110	<300	N/A	1223P ASHING SYSTEM FAULT-SL
1.31 pm		CS Energy	Wivenhoe	250	300	13 800	1331A DEMAND HIGHER THAN FORECAST-SL
2.21 pm		Origin Energy	Mt Stuart	156	<297	12 889	1420A DEC QLD DEM 5PD 8216 MW < 30PD 8402 MW @ 1435 SL
2.57 pm	3.05 pm	Callide Power Trading	Callide C	40	-1000	13 800	1456A - \$12604.18/MWH CHANGE IN 5MPD RRP DI 15:30 RUNS 1450/55
2.57 pm	3.05 pm	CS Energy	Gladstone	55	<36	13 800	1456P REARRANGEMENT DUE TO MILL RTS-SL
3.12 pm	3.20 pm	Callide Power Trading	Callide C	40	-1000	13 800	1511A RRP BELOW 5MIN PD FOR DI 1515

The rebidding listed in Table 26 created a steep supply curve such that a small change in demand led to an increase in the dispatch price from \$79/MWh at 3.15 pm to \$12 700/MWh at 3.20 pm. The price then reduced to below \$55/MWh in the following dispatch interval, when around 350 MW of capacity was rebid from high to low prices, citing price higher than forecast, constraint management or changes in network limits as the reason.

**Table 27: Rebids for the 4 pm trading interval**

Submit time	Time effective	Participant	Station	Capacity rebid (MW)	Price from (\$/MWh)	Price to (\$/MWh)	Rebid reason
12.25 pm		CS Energy	Gladstone	-110	<300	N/A	1223P ASHING SYSTEM FAULT-SL
2.57 pm		Callide Power Trading	Callide C	40	-1000	13 800	1456A - \$12604.18/MWH CHANGE IN 5MPD RRP DI 15:30 RUNS 1450/55



Submit time	Time effective	Participant	Station	Capacity rebid (MW)	Price from (\$/MWh)	Price to (\$/MWh)	Rebid reason
2.57 pm		CS Energy	Gladstone	55	<36	13 800	1456P REARRANGEMENT DUE TO MILL RTS-SL

The rebidding in Table 27 created a steep supply curve resulting in the dispatch price increasing from \$203/MWh at 3.35 pm to \$12 700/MWh at 3.40 pm. The price then reduced to below \$40/MWh in the following dispatch interval, when around 200 MW of capacity was rebid from high to low prices, citing price higher than forecast, constraint management or changes in demand as the reason.

**Table 28: Rebids for the 4:30 pm trading interval**

Submit time	Time effective	Participant	Station	Capacity rebid (MW)	Price from (\$/MWh)	Price to (\$/MWh)	Rebid reason
2.57 pm		Callide Power Trading	Callide C	40	-1000	13 800	1456A - \$12604.18/MWH CHANGE IN 5MPD RRP DI 15:30 RUNS 1450/55
4.01 pm	4.10 pm	CS Energy	Gladstone	-90	-1000	N/A	1601P ASHING SYSTEM PROBLEM-SL
4.02 pm	4.10 pm	Callide Power Trading	Callide C	40	-1000	13 800	1602A RRP BELOW 5MIN PD FOR DI 1605

The rebidding listed in Table 28 created a steep supply curve at 4.10 pm when the Callide Power Trading and CS Energy rebids became effective. The dispatch price increased from \$49/MWh at 4.10 pm to \$12 888/MWh at 4.15 pm. The price then reduced to below \$75/MWh in the following dispatch interval, when around 200 MW of capacity was rebid from high to low prices, citing constraint management or change in gas pipeline condition as the reason.

**Table 29: 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
<b>5.30 PM</b>	1794.65	2148.99	2148.99	8301	8301	8280	10 406	10 281	10 292

The spot price was close to forecast.

**Table 30: Rebids for the 7 pm trading interval**

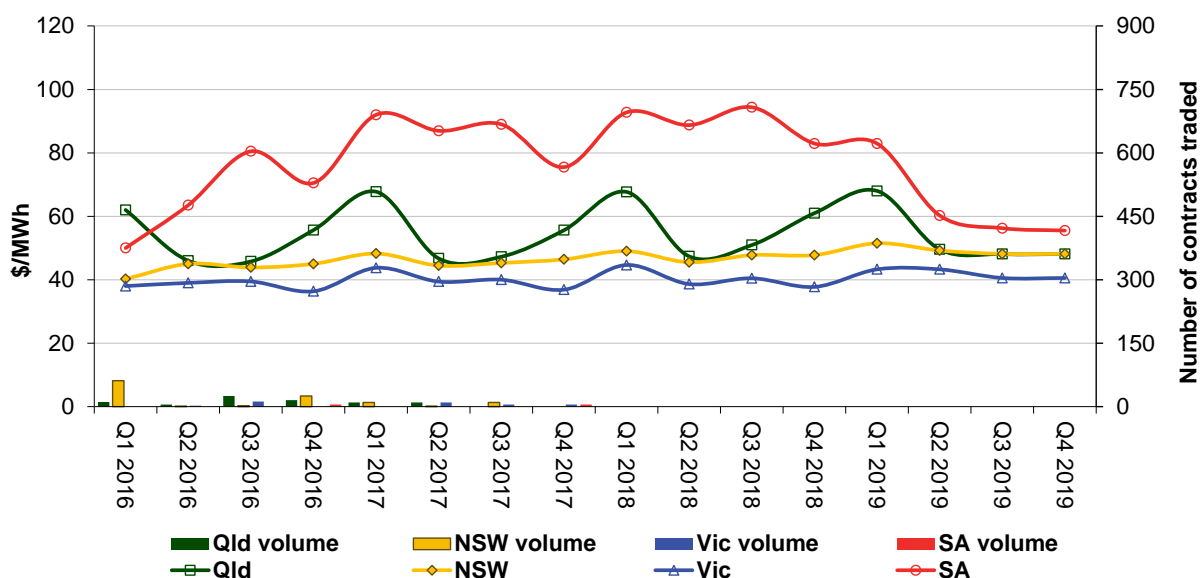
Submit time	Time effective	Participant	Station	Capacity rebid (MW)	Price from (\$/MWh)	Price to (\$/MWh)	Rebid reason
4.32 pm		CS Energy	Gladstone	90	<36	13 800	1628P ASHING SYSTEM OK-SL
4.51 pm		Callide Power Trading	Callide C	40	-1000	13 800	1650A CHANGE IN 5MPD RRP - SL
6.38 pm	6.45 pm	Millmerran Energy Trader	Millmerran	30	7	13 800	18:35 A CHANGE IN PD PRICE - SL

The rebidding listed in Table 30 created a steep supply curve. When Millmerran Energy Trader's rebid became effective at 6.45 pm the dispatch price increased to \$12 888/MWh from \$38/MWh at 6.40 pm. The price then reduced to below \$30/MWh in the following dispatch interval, when around 480 MW of capacity was rebid from high to low prices, citing unexpected price spike as the reason.

## 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.

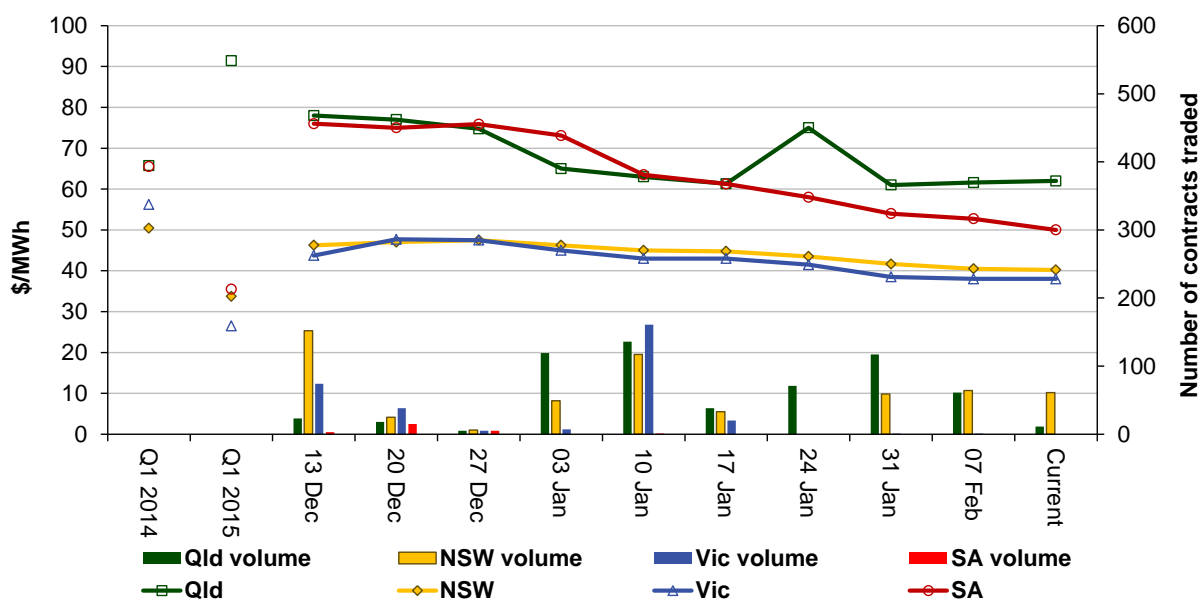
**Figure 9: Quarterly base future prices Q1 2016 – Q4 2019**



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. The price of Q1 contracts in South Australia continues to fall. Queensland Q1 contract prices are maintaining a level slightly above \$60/MWh as has been the case for about six weeks. Similar trends are also evident in price of Q1 cap contracts.

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



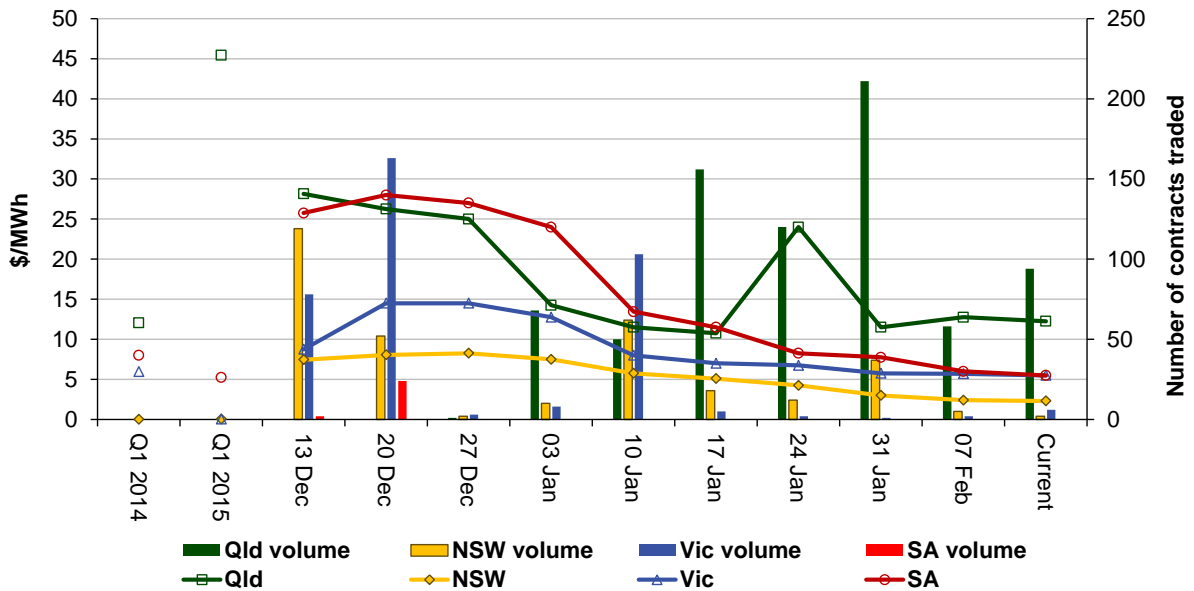
Note. Base contract prices are shown for each of the current week and the previous 9 weeks, with average prices shown for periods 1 and 2 years prior to the current year.

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. Cap contracts in South Australia are now roughly equivalent to the prices for the same instruments in Victoria.

**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**  
**March 2016**