# **Australian Energy Regulator logoElectricity Report**

**28 August – 3 September 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 28 August to 3 September 2016.

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

Figure 1 shows the spot prices for this week in each region. The markers indicate the daily maximum and minimum spot prices in each region.

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)

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

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

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Region | Qld | NSW | Vic | SA | Tas |
| Current week | 52 | 48 | 42 | 54 | 52 |
| 15-16 financial YTD | 45 | 39 | 37 | 72 | 35 |
| 16-17 financial YTD | 57 | 60 | 57 | 160 | 58 |

Longer-term statistics tracking average spot market prices are available on the [AER website](http://www.aer.gov.au/industry-information/industry-statistics).

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 210 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 | 2 | 81 | 0 | 1 |
| % of total below forecast | 13 | 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 shows the total generation dispatched and the amounts of capacity bid in within certain price bands for each 30 minute trading interval in Queensland this week.
Should you require a description of the data for the week under review, please email us at AERInquiry@aer.gov.au.

Figure 4: New South Wales generation and bidding patterns

Figure 4 shows the total generation dispatched and the amounts of capacity bid in within certain price bands for each 30 minute trading interval in New South Wales this week.
Should you require a description of the data for the week under review, please email us at AERInquiry@aer.gov.au.

Figure 5: Victoria generation and bidding patterns

Figure 4 shows the total generation dispatched and the amounts of capacity bid in within certain price bands for each 30 minute trading interval in Victoria this week.
Should you require a description of the data for the week under review, please email us at AERInquiry@aer.gov.au.

Figure 6: South Australia generation and bidding patterns

Figure 6 shows the total generation dispatched and the amounts of capacity bid in within certain price bands for each 30 minute trading interval in South Australia this week.
Should you require a description of the data for the week under review, please email us at AERInquiry@aer.gov.au.

Figure 7: Tasmania generation and bidding patterns

Figure 4 shows the total generation dispatched and the amounts of capacity bid in within certain price bands for each 30 minute trading interval in Tasmania this week.
Should you require a description of the data for the week under review, please email us at AERInquiry@aer.gov.au.

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 $8 465 500 or around 5 per cent of energy turnover on the mainland.

The total cost of FCAS in Tasmania for the week was $262 000 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

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.
Should you require a description of the data for the week under review, please email us at  AERInquiry@aer.gov.au.

On 1 September the price of raise and lower regulation services in South Australia exceeded $8000/MW for 111 consecutive dispatch intervals from 7.20 am to 4.40 pm at a cost of around $6.5 million. The Cumulative Price Threshold of $210 100 was breached and prices were capped at $300/MW from 4.40 pm. A planned outage by AusNet of the Moorabool to Tarrone line in Victoria, which started at 7 am, created a single contingency which if occurs separates South Australia from the rest of the NEM. This would mean that South Australia has to source its regulation services locally.

In accordance with clause 3.13.7 of the Electricity Rules, the AER will issue a separate report into the circumstances that led to the price exceeding $5000/MW.

Detailed market analysis of significant price events

## Tasmania

There was one occasion where the spot price in Tasmania was greater than three times the Tasmania weekly average price of $52/MWh and above $250/MWh.

### Saturday, 3 September

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 |
| 9 pm | 318.73 | 26.79 | 25.78 | 1197 | 1195 | 1172 | 1997 | 1928 | 1974 |

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

There was little capacity priced between $0/MWh and $277/MWh meaning small changes in demand and availability could lead to volatile prices. At 8.35 pm there was a step change in offers at the Lemonthyme/Wilmot Power Station, which had been set up a day in advance. The unit went from having all 85 MW priced less than zero to 54 MW priced less than zero. With all low-priced generation either trapped or stranded in FCAS or fully dispatched the price increased from $58/MWh at 8.30 pm to $407/MWh at 8.35 pm before falling to around $300/MWh for the rest 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 Q3 2016 – Q2 2020 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.

Source. [ASXEnergy.com.au](https://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)

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.      
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](https://asxenergy.com.au/)

Prices of other financial products (including longer-term price trends) are available in the [Industry Statistics](http://www.aer.gov.au/industry-information/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)

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.Source. [ASXEnergy.com.au](https://asxenergy.com.au/)

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