

Electricity prices above \$5,000/MWh

South Australia,

26 August & 8 September 2022

18 October 2022

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1 Obligation

The Australian Energy Regulator (AER) regulates energy markets and networks under national legislation and rules in eastern and southern Australia (known as the National Energy Market), as well as networks in the Northern Territory.

The AER has an obligation under the National Electricity Rules (NER) to monitor and report on significant price outcomes in the National Energy Market (NEM).

The Australian Energy Market Commission (AEMC) recently published a rule-change with respect to the AER's significant price reporting obligations. This has introduced greater flexibility and discretion to the AER in how it conducts significant price reporting going forward.

Under the new clause 3.13.7(d) of the NER, which outlines the AER's reporting obligations, the AER is required to publish a report whenever the electricity 30-minute price¹ exceeds \$5,000 per megawatt hour (\$/MWh).

This report describes the significant factors contributing to the 30-minute price exceeding \$5,000/MWh, considering available generation capacity, network availability, offer and rebidding behaviour.

These reports are designed to examine market events and circumstances that contributed to wholesale market price outcomes and are not an indicator of potential compliance issues or enforcement action.

¹ From 1 October 2021, clause 3.13.7 of the NER was amended for 5 minute settlement. Under 5 minute settlement, a trading interval is now comprised of a 5 minute period and the spot price is the price for a trading interval. The 30-minute price is the average of 6 trading intervals and is calculated the same way as previously under 30 minute settlement.

2 Summary

The wholesale price of electricity exceeded \$5,000/MWh over four 30-minute intervals on 26 August and over two 30-min intervals on 8 September in South Australia. This report, as per the National Electricity Rules, covers the Australian Energy Regulator's (AER) review into these events.

Table 1: Summary of 30-minute high price events

| Date | Time | South Australian price (\$/MWh) |
|--------|----------|---------------------------------|
| 26 Aug | 7 am | 8,872 |
| | 7.30 am | 12,609 |
| | 8 am | 12,924 |
| | 8.30 am | 13,351 |
| 8 Sept | Midnight | 9,887 |
| | 12.30 am | 9,664 |

The drivers of these prices were:

26 August

Prices were forecast to be high from the first forecast published on the previous day.

- A planned outage on the Heywood interconnector meant imports were limited to 50 MW.
- Output from renewable wind generation was around 100 MW
- Cold temperatures drove high demand (~1,800 MW)

8 September

- A planned outage of the MurrayLink interconnector meant imports were limited to 0 MW.
- Output from wind generation was around 370 MW lower than expected.
- South Australia's largest generator was on a planned outage, materially reducing the availability of low-priced generation in the region.

Section 4 Summary of previous high price events summarises high prices in South Australia and Victoria in May, June and July that had not been explicitly reported on previously.

3 Overview of the conditions

In South Australia, prices exceeded \$5,000/MWh for four 30-minute intervals during the morning of 26 August and over two intervals around midnight of 8 September. The drivers behind these prices are largely the same for both days.

From Table 2, we observe that:

- high prices were forecast 1 hour prior for the 26 August intervals but were not forecast for the 8 September intervals
- Actual demand was close to forecast.
- Actual availability was close to forecast for the 26 August intervals but was around 400 MW lower than forecast for the 8 September intervals

In fact for 26 August, high prices were expected from the first forecast of the previous day. Demand levels were around 1,700 MW which was a typical level of demand for this time of day during August in South Australia.

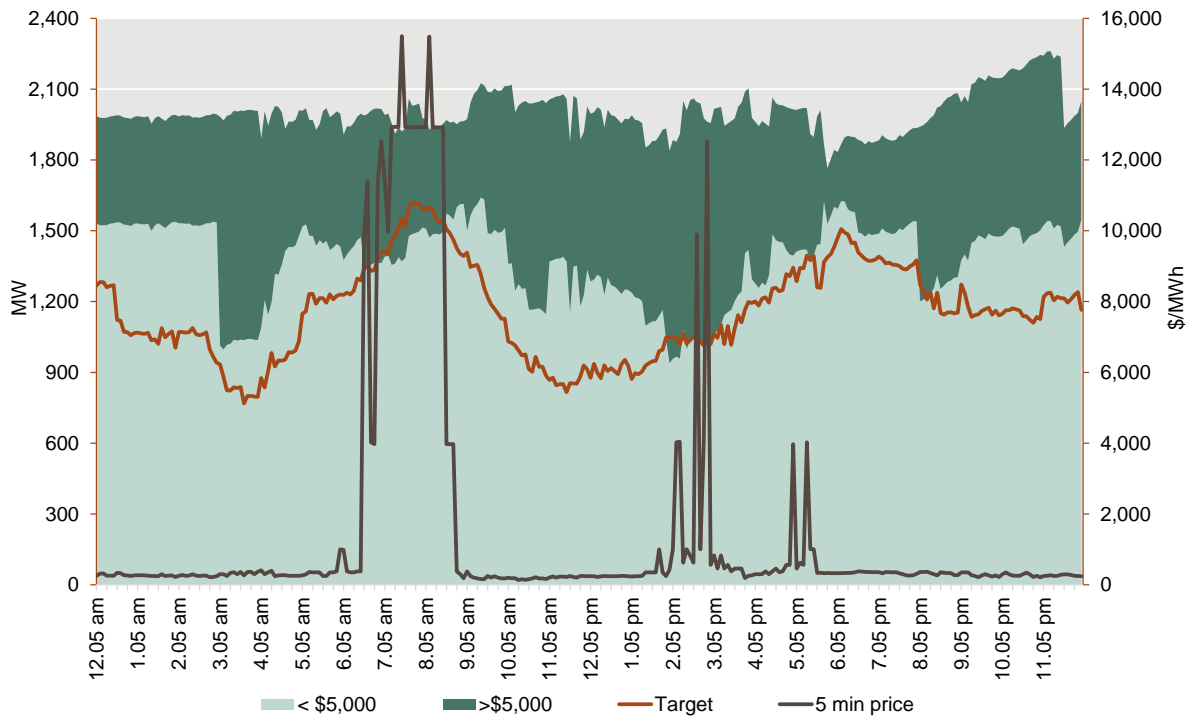
For 8 September, the variance between forecast and actual availability is because wind output was significantly lower than forecast.

Table 2: Actual and forecast 30-minute price, demand and availability

| Date | Time | Price (\$/MWh) | | Demand (MW) | | Availability (MW) | |
|--------|----------|----------------|---------------|-------------|---------------|-------------------|---------------|
| | | Actual | 1 hr forecast | Actual | 1 hr forecast | Actual | 1 hr forecast |
| 26 Aug | 7 am | 8,872 | 4,609 | 1,561 | 1,603 | 2,008 | 2,055 |
| | 7.30 am | 12,609 | 11,600 | 1,675 | 1,682 | 1,980 | 2,048 |
| | 8 am | 12,924 | 12,922 | 1,808 | 1,756 | 2,024 | 2,010 |
| | 8.30 am | 13,351 | 12,926 | 1,779 | 1,761 | 1,961 | 2,047 |
| 8 Sept | midnight | 9,887 | 163 | 1,513 | 1,588 | 1,740 | 2,156 |
| | 12.30 am | 9,634 | 169 | 1,476 | 1,548 | 1,422 | 1,844 |

For these high prices, only between 1% and 9% of capacity offered above \$5,000/MWh was needed to meet demand on both days.

Figure 1: Capacity offered above and below \$5,000/MWh in South Australia 26 August



Source: AER analysis using NEM data

3.2 Planned network outages limited access to cheaper generation from Victoria

For 26 August, a planned outage of some equipment on the Heywood interconnector meant South Australia could only import up to 50 MW, from Victoria. Heywood’s nominal capacity into South Australia is 600 MW.

The outage started at 5.30 am, so AEMO invoked constraints just beforehand to limit imports into South Australia. The planned outage and associated constraints were published to the market on 11 August. This means the constrained interconnector flows would have been factored into AEMO price forecasts.

Murraylink was not affect by the outage and was able to transfer around 170 MW of capacity from Victoria into South Australia.

For 8 September, there was a planned outage of the MurrayLink interconnector. MurrayLink’s nominal capacity is 220 MW. This means that South Australia’s access to lower priced generation in Victoria was reduced.

AEMO invoked constraints on 5 September, when the planned outage commenced, which set flow across the interconnector to 0 MW.

Heywood was able to transfer around 560 MW from Victoria into South Australia during this time.

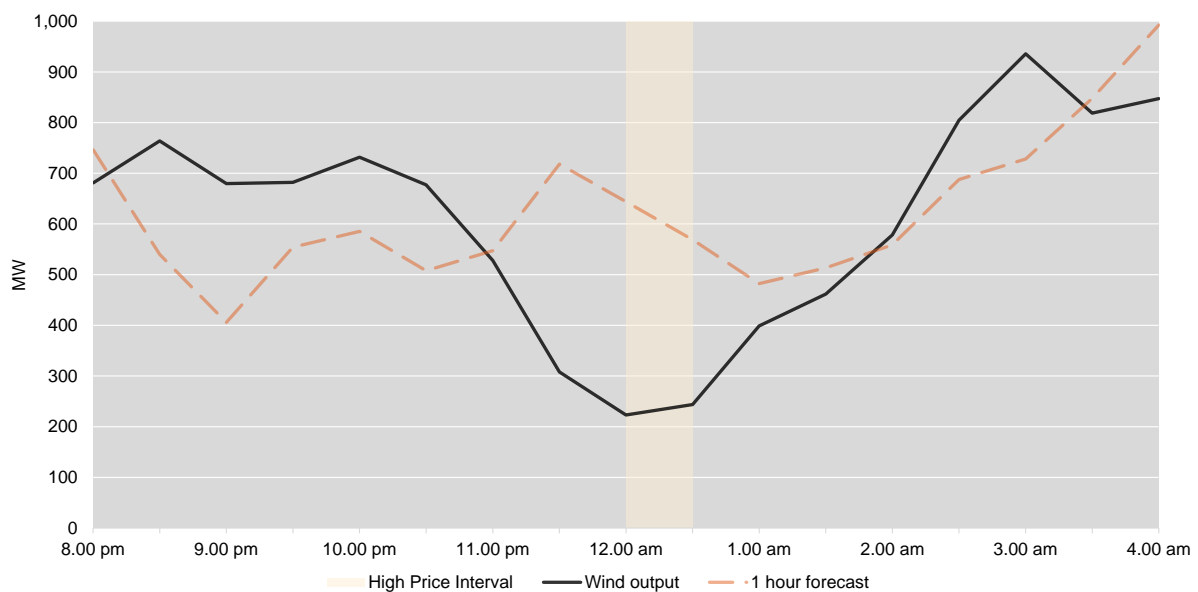
3.3 Renewable generation was very low

Low wind output occurred on both days. There was little or no supply from solar generation as the high prices occurred either at night or very early morning.

There is around 2,300 MW of installed wind farms in South Australia. Wind output is entirely dependent on the weather and it was quite calm on both days.

On 26 August, average output during the high price intervals was around 100 MW. Very low output was forecast and factored into the price forecasts published by AEMO.

Figure 2: South Australia actual wind output vs 1 hour forecast (8 September)



On 8 September, average output was around 230 MW during the high priced intervals. However, actual output was around 370 MW lower than expected one hour prior (600 MW). This means that the supply of low priced available wind capacity was significantly lower than the price forecasts factored in, explaining why the high price was not forecast one hour prior.

3.4 Planned generator outages reduced supply further

On 8 September, Pelican Point was not available to the market. Engie rebid the generator unavailable from the previous day. Pelican Point (478 MW) is the largest single generator in the region, that typically offers the majority of its capacity at lower prices. So the planned outage materially reduced the availability of low priced generation in the region, meaning more expensive generation was required.

Rebidding from low to high prices did not significantly contribute to high prices on either day.

4 Summary of previous high price events

The following table identifies the high-level drivers behind the high-priced events that occurred in South Australia and Victoria between May and July. These prices were not explicitly reported on previously. The drivers and underlying market conditions are discussed more broadly in our [quarterly](#) report and further analysis will be undertaken in the upcoming Wholesale Electricity Market Performance Report.

Rebidding from low to high prices did not significantly contribute to these high prices. All of these prices were forecast from the previous day.

Table 3: Drivers of previous high priced intervals in South Australia and Victoria

| Date | Time | Price (\$/MWh) | | Drivers |
|--------|---------|-----------------|----------|---|
| | | South Australia | Victoria | |
| 9 May | 6 pm | 8,040 | | Restricted access to low priced generation. <ul style="list-style-type: none"> • MurrayLink was on a planned outage • Pelican Point (478 MW) on a planned outage • Average wind output was around 170 MW |
| | 6.30 pm | 11,298 | | |
| 10 May | 6 pm | 6,454 | | Restricted access to low priced generation. <ul style="list-style-type: none"> • Planned outage on Heywood-Tarrone line limited imports across Heywood to 50 MW • MurrayLink was on a planned outage • Pelican Point (478 MW) on a planned outage |
| 11 May | 8 am | 11,378 | | Restricted access to low priced generation. <ul style="list-style-type: none"> • Planned out on Heywood-Tarrone line limited imports across Heywood to 50 MW • MurrayLink was on a planned outage • Pelican Point (478 MW) on a planned outage • QPS5 (120 MW) tripped and did not return to service until the afternoon. |
| | 8.30 am | 6,724 | | |
| 17 May | 7 am | 9,985 | | Restricted access to low priced generation. <ul style="list-style-type: none"> • Planned out on Heywood-Tarrone line limited imports across Heywood to 50 MW |
| | 7.30 am | 11,518 | | |

Electricity 30-minute prices above \$5,000/MWh

| Price (\$/MWh) | | | | |
|----------------|---------|-----------------|----------|---|
| Date | Time | South Australia | Victoria | Drivers |
| | 8 am | 12,073 | | <ul style="list-style-type: none"> MurrayLink was on a planned outage Wind output < 200 MW |
| | 8.30 am | 6,524 | | |
| 13 June | 6 pm | 5,436 | 7,166 | <p>Administered pricing and pre-market suspension.</p> <ul style="list-style-type: none"> High coal and gas prices Queensland under administered pricing cap (\$300/MWh) and intervention pricing in the remaining regions Queensland's underlying high prices drove up the price in all other regions Minimal wind output in both regions Significant baseload outages NEM wide, ~1,300 MW in Victoria Participants withdrew capacity following administered pricing² Actual LOR2 in NSW and Qld Generators directed on to maintain system security |
| | 6.30 pm | 7,840 | 9,419 | |
| 8 July | 8.30 am | 6,510 | | <p>Restricted access to low priced generation.</p> <ul style="list-style-type: none"> Planned outage on South East Heywood line forced up to 40 MW across Heywood and prevented imports. Wind output was relatively low (~330 MW) |
| | 9 am | 9,169 | | |

² For details on the administered pricing period and market suspension see https://www.aemo.com.au/-/media/files/electricity/nem/market_notices_and_events/market_event_reports/2022/nem-market-suspension-and-operational-challenges-in-june-2022.pdf?la=en