

# Spot prices greater than \$5000/MWh



AUSTRALIAN ENERGY  
REGULATOR

South Australia: 19 November 2009

## Introduction

The AER is required to publish a report covering the circumstances in which the spot price exceeds \$5000/MWh, pursuant to clause 3.13.7 (d) of the National Electricity Rules (Electricity Rules). That report should:

- describe significant factors contributing to the spot price exceeding \$5000/MWh, including withdrawal of generation capacity and network availability;
- assess whether rebidding pursuant to clause 3.8.22 contributed to the spot price exceeding \$5000/MWh;
- identify the marginal scheduled generating units; and
- identify all units with offers for the trading interval equal to or greater than \$5000/MWh and compare these dispatch offers to relevant dispatch offers in previous trading intervals.

## Summary

On Thursday 19 November 2009, the spot price in South Australia exceeded \$5000/MWh for eight trading intervals from 2.30 pm to 6 pm inclusive. None of these prices were forecast four hours ahead, as actual demand exceeded that forecast for the whole period. The temperature reached 43°C in Adelaide, the hottest ever recorded in November. This saw demand reach 2992 MW at 5 pm.

Bidding by AGL significantly contributed to the spot prices exceeding \$5000/MWh. AGL was the only participant with offers above \$5000/MWh, with around two thirds of its available capacity at Torrens Island power station priced at close to the price cap. Dispatch of this capacity set the price at greater than \$9997/MWh for 43 out of 48 dispatch intervals during this period.

Rebidding did not contribute to the prices exceeding \$5000/MWh.

A rebid close to dispatch by AGL, that extended the period of offers at the price cap, also led to one 5 minute price spike during the 7.30 pm trading interval.

Imports from Victoria were lower than forecast throughout the whole period.

## Actual and forecast demand

Figure 1 compares the actual demand, spot price and available capacity in South Australia during the high-priced period with that forecast by AEMO four and 12 hours ahead of dispatch. Also included are trading intervals before and after the high-priced period for completeness. At around 7 am, AEMO decreased the forecast demand, with further reductions during the morning. As a result, actual demand was up to 169 MW (or 6 per cent) higher than that forecast four hours ahead, but close to that forecast 12 hours ahead. This meant that three out of the eight high prices were close to that forecast 12 hours ahead but none of the high prices were forecast four hour ahead. Available capacity was close to forecast throughout.

**Figure 1: South Australia demand<sup>1</sup>, spot price and available capacity**

| <b>Time</b>     |                         | <b>Actual</b> | <b>4 hr forecast</b> | <b>12 hr forecast</b> |
|-----------------|-------------------------|---------------|----------------------|-----------------------|
| <b>2.00 pm*</b> | Spot price (\$MW/h)     | 4616.24       | 314.59               | 404.40                |
|                 | Demand (MW)             | 2884          | 2702                 | 2893                  |
|                 | Available capacity (MW) | 3256          | 3152                 | 3169                  |
| <b>2.30 pm</b>  | Spot price (\$MW/h)     | 6777.81       | 317.33               | 421.50                |
|                 | Demand (MW)             | 2905          | 2738                 | 2907                  |
|                 | Available capacity (MW) | 3225          | 3159                 | 3170                  |
| <b>3.00 pm</b>  | Spot price (\$MW/h)     | 8396.44       | 317.38               | 437.26                |
|                 | Demand (MW)             | 2903          | 2734                 | 2907                  |
|                 | Available capacity (MW) | 3213          | 3166                 | 3171                  |
| <b>3.30 pm</b>  | Spot price (\$MW/h)     | 9999.65       | 320.22               | 9999.77               |
|                 | Demand (MW)             | 2927          | 2817                 | 2907                  |
|                 | Available capacity (MW) | 3210          | 3208                 | 3175                  |
| <b>4.00 pm</b>  | Spot price (\$MW/h)     | 9999.77       | 327.33               | 9999.77               |
|                 | Demand (MW)             | 2972          | 2836                 | 2951                  |
|                 | Available capacity (MW) | 3200          | 3208                 | 3177                  |
| <b>4.30 pm</b>  | Spot price (\$MW/h)     | 9999.77       | 324.00               | 9999.77               |
|                 | Demand (MW)             | 2980          | 2840                 | 2967                  |
|                 | Available capacity (MW) | 3195          | 3201                 | 3168                  |
| <b>5.00 pm</b>  | Spot price (\$MW/h)     | 9999.77       | 171.81               | 438.92                |
|                 | Demand (MW)             | 2992          | 2827                 | 2921                  |
|                 | Available capacity (MW) | 3186          | 3204                 | 3167                  |
| <b>5.30 pm</b>  | Spot price (\$MW/h)     | 9998.40       | 105.11               | 299.40                |
|                 | Demand (MW)             | 2938          | 2793                 | 2901                  |
|                 | Available capacity (MW) | 3198          | 3200                 | 3155                  |
| <b>6.00 pm</b>  | Spot price (\$MW/h)     | 6999.21       | 64.43                | 1000                  |
|                 | Demand (MW)             | 2889          | 2740                 | 2824                  |
|                 | Available capacity (MW) | 3178          | 3191                 | 3154                  |
| <b>6.30 pm*</b> | Spot price (\$MW/h)     | 2463.59       | 48.43                | 1000                  |
|                 | Demand (MW)             | 2854          | 2700                 | 2759                  |
|                 | Available capacity (MW) | 3171          | 3171                 | 3151                  |
| <b>7.00 pm*</b> | Spot price (\$MW/h)     | 221.16        | 44.22                | 299.77                |
|                 | Demand (MW)             | 2776          | 2570                 | 2659                  |
|                 | Available capacity (MW) | 3146          | 3163                 | 3129                  |
| <b>7.30 pm*</b> | Spot price (\$MW/h)     | 1619.30       | 54.61                | 62.56                 |
|                 | Demand (MW)             | 2756          | 2503                 | 2431                  |
|                 | Available capacity (MW) | 3128          | 3173                 | 3135                  |

\* Trading intervals with spot prices less than \$5000/MWh are included to show the price trend before and after the high-priced period.

<sup>1</sup> With the advent of significant non-scheduled generation, AEMO commenced determining “native demand” which is the demand supplied by scheduled, semi-scheduled or significant non-scheduled generators (South Australia has a large amount of non-scheduled wind generation). The native demand less the non-scheduled generation is the demand that is met by scheduled and semi-scheduled generators in the dispatch process – the “scheduled demand”. The forecast of significant non-scheduled generation was close to actual and therefore did not impact on the accuracy of the “scheduled demand”, which we analyse in this report.

## Generator offers and rebidding

During the high-priced period, around 30 per cent of the total capacity in South Australia was priced above \$5000/MWh, all bid by AGL. There was around 2450 MW of capacity priced below \$302/MWh and 720 MW priced above \$9581/MWh, with no capacity in South Australia offered between those prices. The 2450 MW of low priced capacity combined with around 400 MW of imports into South Australia meant that small variations in demand around 2850 MW resulted in significant changes in price.

There was only 240 MW of lower cost generation that was not available on the day. Figure 2 lists the low cost generators in South Australia that were not available together with the capacity.

**Figure 2: South Australia low cost generation that was not available on 19 November**

| Participant  | Generating unit         | Capacity (MW) |
|--------------|-------------------------|---------------|
| AGL          | Torrens Island A unit 2 | 120           |
| AGL          | Torrens Island A unit 3 | 120           |
| <b>Total</b> |                         | <b>240</b>    |

During the high-priced period, around 720 MW of available capacity in South Australia was priced above \$9000/MWh. All of this capacity was at Torrens Island and Angaston power stations and bid in the day-ahead by AGL. More details are presented in **Appendix A**. Throughout this period, AGL set the price in 43 out of 48 dispatch intervals at \$9997/MWh or above. Price setting details are presented in **Appendix B**.

At 6.17 pm, close to dispatch, AGL rebid 670 MW of capacity across its Torrens Island A units one and four and the four B units from prices below \$305/MWh to the price cap. The reason given was “18:15M fcas price change::incr in prices 5mpd vs pd 1900& 1930”. This rebid effected the 7 pm and 7.30 pm trading intervals.

Over two rebids at 6.58 pm and 7.09 pm, Origin Energy reduced the available capacity at Osborne by 95 MW all of which was priced below \$25/MWh. The reason given was “1855 (P) Plant conditions” and “1905 (PN) Plant conditions change in PDS”.

At 7.30 pm, the spot price in South Australia spiked to \$1619/MWh.

There was no other significant rebidding.

## Changes to network availability

Combined imports into South Australia during the high-priced period were at the limit but lower than that forecast four hours ahead. The average overestimate of import capability was 120 MW (15 MW across Heywood and 105 MW across Murraylink).

The largest errors occurred for Murraylink. The import limits were driven by the constraint used to manage the flows across the Ballarat to Moorabool No 1 220 kV line for the loss of the remaining line. The constraint limits flow across Murraylink and Victoria to New South Wales interconnectors.

Between 4.50 pm and 6.40 pm, AEMO invoked a further network constraint, to manage the Ballarat to Moorabool No 1 line. Following this change, the Murraylink target flow reversed from 47 MW (into South Australia) at 4.50 pm to 108 MW (into Victoria) at 4.55 pm.

Figure 3 compares the actual import limit with that forecast four hours ahead during the high-priced periods for each interconnector into South Australia. It also highlights the combined forecast error.

**Figure 3: Actual and 4 hour ahead forecast import limits into South Australia**

|         | Heywood import limit |                      | Murraylink import limit |                      | Combined forecast error (MW) |
|---------|----------------------|----------------------|-------------------------|----------------------|------------------------------|
|         | Actual (MW)          | 4 hour forecast (MW) | Actual (MW)             | 4 hour forecast (MW) |                              |
| 2.30 pm | 364                  | 355                  | 29                      | 140                  | -101                         |
| 3.00 pm | 364                  | 355                  | 28                      | 137                  | -101                         |
| 3.30 pm | 364                  | 358                  | 30                      | 151                  | -115                         |
| 4.00 pm | 366                  | 359                  | -7                      | 148                  | -147                         |
| 4.30 pm | 369                  | 359                  | 63                      | 126                  | -53                          |
| 5.00 pm | 368                  | 414                  | 22                      | 118                  | -142                         |
| 5.30 pm | 360                  | 413                  | 62                      | 134                  | -125                         |
| 6.00 pm | 359                  | 412                  | 66                      | 182                  | -167                         |

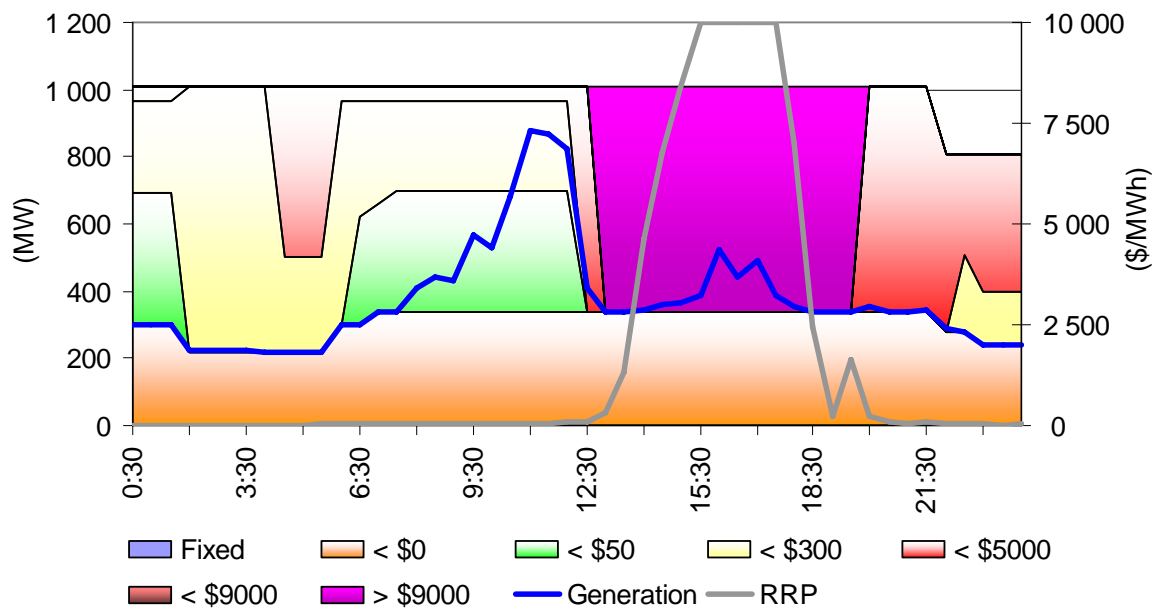
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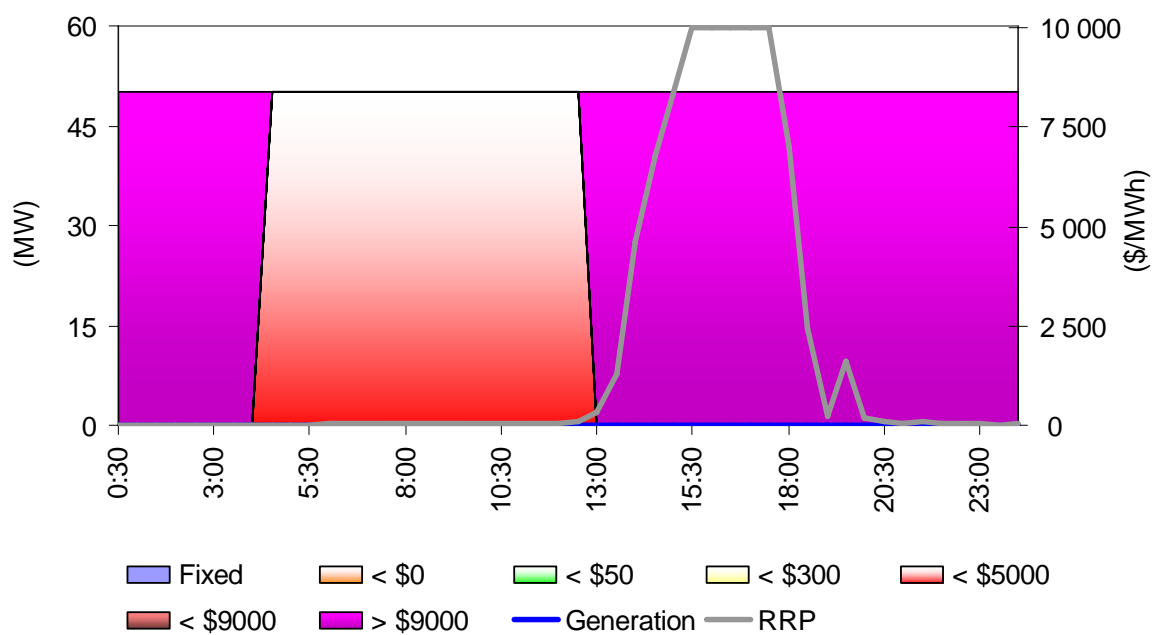
## Appendix A – Closing bids

Figures A1 and A2 highlight the half hour closing bids for participants in South Australia with significant capacity priced at or above \$5000/MWh during the trading intervals in which the spot price exceeded \$5000/MWh. It also shows the generation output of that participant and the spot price.

**Figure A1: AGL (Torrens Island) closing bid prices, dispatch and spot price**



**Figure A2: AGL (Angaston) closing bid prices, dispatch and spot price**



## Appendix B – Price setters for Thursday 19 November 2009

The following tables identify the trading intervals in which the spot price exceeded \$5000/MWh. Each five minute dispatch interval price and the generating units involved in setting the energy price, as published in the market systems, are shown. This information is published by AEMO<sup>2</sup>. Also shown is the energy or ancillary service offer price involved in determining the dispatch price together with the quantity of that service and the contribution to the total energy price. The 30-minute spot price is the time weighted average of the six dispatch interval prices.

### South Australia 19 November - 2.30 pm

| Time              | Dispatch price | Participant          | Unit      | Service           | Offer price | Marginal change | Contribution |
|-------------------|----------------|----------------------|-----------|-------------------|-------------|-----------------|--------------|
| 14:05             | \$9998.88      | Delta Electricity    | WW7       | Lower reg         | \$1.00      | -1.00           | -\$1.00      |
|                   |                | AGL SA               | TORRB1    | Lower reg         | \$0.25      | 1.00            | \$0.25       |
|                   |                | AGL SA               | TORRB1    | Raise reg         | \$0.80      | 1.00            | \$0.80       |
|                   |                | AGL SA               | TORRB1    | Energy            | \$9999.77   | 1.00            | \$9999.77    |
|                   |                | Stanwell             | GSTONE2   | Raise reg         | \$0.94      | -1.00           | -\$0.94      |
| 14:10             | \$338.19       | Snowy Hydro          | MURRAY    | Energy            | \$294.96    | 1.15            | \$338.19     |
| 14:15             | \$9999.03      | AGL SA               | TORRB4    | Lower reg         | \$0.25      | 0.33            | \$0.08       |
|                   |                | AGL SA               | TORRB3    | Lower reg         | \$0.25      | 0.33            | \$0.08       |
|                   |                | AGL SA               | TORRB2    | Lower reg         | \$0.25      | 0.33            | \$0.08       |
|                   |                | Stanwell             | GSTONE3   | Lower reg         | \$0.99      | -1.00           | -\$0.99      |
|                   |                | AGL SA               | TORRB4    | Energy            | \$9999.77   | 0.33            | \$3333.22    |
|                   |                | AGL SA               | TORRB3    | Energy            | \$9999.77   | 0.33            | \$3333.22    |
|                   |                | AGL SA               | TORRB2    | Energy            | \$9999.77   | 0.33            | \$3333.22    |
| 14:20             | \$331.80       | Snowy Hydro          | MURRAY    | Energy            | \$294.96    | 1.12            | \$331.80     |
| 14:25             | \$9999.39      | AGL SA               | TORRB4    | Lower reg         | \$0.80      | 0.25            | \$0.20       |
|                   |                | AGL SA               | TORRB3    | Lower reg         | \$0.80      | 0.25            | \$0.20       |
|                   |                | AGL SA               | TORRB2    | Lower reg         | \$0.80      | 0.25            | \$0.20       |
|                   |                | AGL SA               | TORRB1    | Lower reg         | \$0.80      | 0.25            | \$0.20       |
|                   |                | Int. Power           | LOYB2     | Lower 5 min       | \$0.28      | -1.00           | -\$0.28      |
|                   |                | Hydro Tasmania       | GORDON    | Lower 5 min       | \$0.40      | 1.00            | \$0.40       |
|                   |                | Hydro Tasmania       | CETHANA   | Lower reg         | \$1.30      | -1.00           | -\$1.30      |
|                   |                | AGL SA               | TORRB2    | Energy            | \$9999.77   | 0.25            | \$2499.94    |
|                   |                | AGL SA               | TORRB4    | Energy            | \$9999.77   | 0.25            | \$2499.94    |
|                   |                | AGL SA               | TORRB3    | Energy            | \$9999.77   | 0.25            | \$2499.94    |
|                   |                | AGL SA               | TORRB1    | Energy            | \$9999.77   | 0.25            | \$2499.94    |
|                   |                | 14:30                | \$9999.57 | Delta Electricity | WW7         | Lower reg       | \$1.00       |
| AGL SA            | TORRB4         |                      |           | Lower reg         | \$0.80      | 0.25            | \$0.20       |
| AGL SA            | TORRB3         |                      |           | Lower reg         | \$0.80      | 0.25            | \$0.20       |
| AGL SA            | TORRB2         |                      |           | Lower reg         | \$0.80      | 0.25            | \$0.20       |
| AGL SA            | TORRB1         |                      |           | Lower reg         | \$0.80      | 0.25            | \$0.20       |
| AGL SA            | TORRB1         |                      |           | Energy            | \$9999.77   | 0.25            | \$2499.94    |
| AGL SA            | TORRB4         |                      |           | Energy            | \$9999.77   | 0.25            | \$2499.94    |
| AGL SA            | TORRB3         |                      |           | Energy            | \$9999.77   | 0.25            | \$2499.94    |
| AGL SA            | TORRB2         |                      |           | Energy            | \$9999.77   | 0.25            | \$2499.94    |
| <b>Spot price</b> |                | <b>\$6777.81/MWh</b> |           |                   |             |                 |              |

<sup>2</sup> Details on how the price is determined can be found at [www.aemo.com.au](http://www.aemo.com.au)

### South Australia 19 November - 3 pm

| Time              | Dispatch price | Participant          | Unit    | Service   | Offer price | Marginal change | Contribution |
|-------------------|----------------|----------------------|---------|-----------|-------------|-----------------|--------------|
| 14:35             | \$9998.52      | Delta Electricity    | VP5     | Raise reg | \$1.00      | -1.00           | -\$1.00      |
|                   |                | Hydro Tasmania       | TRIBUTE | Lower reg | \$1.30      | -1.00           | -\$1.30      |
|                   |                | AGL SA               | TORRB1  | Lower reg | \$0.25      | 1.00            | \$0.25       |
|                   |                | AGL SA               | TORRB1  | Raise reg | \$0.80      | 1.00            | \$0.80       |
|                   |                | AGL SA               | TORRB1  | Energy    | \$9999.77   | 1.00            | \$9999.77    |
| 14:40             | \$9999.58      | AGL SA               | TORRB4  | Lower reg | \$0.80      | 0.50            | \$0.40       |
|                   |                | AGL SA               | TORRB3  | Lower reg | \$0.80      | 0.50            | \$0.40       |
|                   |                | AGL SA               | TORRB3  | Energy    | \$9999.77   | 0.50            | \$4999.89    |
|                   |                | Stanwell             | STAN-1  | Lower reg | \$0.99      | -1.00           | -\$0.99      |
|                   |                | AGL SA               | TORRB4  | Energy    | \$9999.77   | 0.50            | \$4999.89    |
| 14:45             | \$9999.27      | AGL SA               | TORRB4  | Lower reg | \$0.80      | 0.33            | \$0.27       |
|                   |                | AGL SA               | TORRB3  | Lower reg | \$0.80      | 0.33            | \$0.27       |
|                   |                | AGL SA               | TORRB2  | Lower reg | \$0.80      | 0.33            | \$0.27       |
|                   |                | AGL SA               | TORRB2  | Energy    | \$9999.77   | 0.33            | \$3333.22    |
|                   |                | Hydro Tasmania       | CETHANA | Lower reg | \$1.30      | -1.00           | -\$1.30      |
|                   |                | AGL SA               | TORRB4  | Energy    | \$9999.77   | 0.33            | \$3333.22    |
|                   |                | AGL SA               | TORRB3  | Energy    | \$9999.77   | 0.33            | \$3333.22    |
| 14:50             | \$9998.72      | Hydro Tasmania       | TRIBUTE | Lower reg | \$1.30      | -1.00           | -\$1.30      |
|                   |                | AGL SA               | TORRB4  | Lower reg | \$0.25      | 0.33            | \$0.08       |
|                   |                | AGL SA               | TORRB3  | Lower reg | \$0.25      | 0.33            | \$0.08       |
|                   |                | AGL SA               | TORRB2  | Lower reg | \$0.25      | 0.33            | \$0.08       |
|                   |                | AGL SA               | TORRB3  | Energy    | \$9999.77   | 0.33            | \$3333.22    |
|                   |                | AGL SA               | TORRB2  | Energy    | \$9999.77   | 0.33            | \$3333.22    |
|                   |                | AGL SA               | TORRB4  | Energy    | \$9999.77   | 0.33            | \$3333.22    |
| 14:55             | \$9999.02      | Delta Electricity    | WW7     | Lower reg | \$1.00      | -1.00           | -\$1.00      |
|                   |                | AGL SA               | TORRB4  | Lower reg | \$0.25      | 0.33            | \$0.08       |
|                   |                | AGL SA               | TORRB4  | Raise reg | \$0.80      | -0.33           | -\$0.27      |
|                   |                | AGL SA               | TORRB3  | Lower reg | \$0.25      | 0.33            | \$0.08       |
|                   |                | AGL SA               | TORRB1  | Lower reg | \$0.25      | 0.33            | \$0.08       |
|                   |                | AGL SA               | TORRB1  | Raise reg | \$0.80      | 0.33            | \$0.27       |
|                   |                | AGL SA               | TORRB3  | Energy    | \$9999.77   | 0.33            | \$3333.22    |
|                   |                | AGL SA               | TORRB1  | Energy    | \$9999.77   | 0.33            | \$3333.22    |
|                   |                | AGL SA               | TORRB4  | Energy    | \$9999.77   | 0.33            | \$3333.22    |
| 15:00             | \$383.50       | Stanwell             | TALWA1  | Energy    | -\$996.81   | 0.85            | -\$843.70    |
|                   |                | MacGen               | BW02    | Energy    | \$6506.00   | 0.19            | \$1227.23    |
| <b>Spot price</b> |                | <b>\$8396.44/MWh</b> |         |           |             |                 |              |

### South Australia 19 November – 3.30 pm

| Time              | Dispatch price | Participant          | Unit     | Service     | Offer price | Marginal change | Contribution |
|-------------------|----------------|----------------------|----------|-------------|-------------|-----------------|--------------|
| 15:05             | \$9999.76      | TRUenergy (Vic)      | YWPS1    | Raise 6 sec | \$0.05      | -0.83           | -\$0.04      |
|                   |                | AGL SA               | TORRB4   | Lower reg   | \$0.80      | 0.33            | \$0.27       |
|                   |                | AGL SA               | TORRB3   | Lower reg   | \$0.80      | -0.67           | -\$0.53      |
|                   |                | AGL SA               | TORRB3   | Raise 6 sec | \$0.04      | 0.83            | \$0.03       |
|                   |                | AGL SA               | TORRB2   | Lower reg   | \$0.80      | 0.33            | \$0.27       |
|                   |                | AGL SA               | TORRB3   | Energy      | \$9999.77   | 0.33            | \$3333.22    |
|                   |                | AGL SA               | TORRB2   | Energy      | \$9999.77   | 0.33            | \$3333.22    |
|                   |                | AGL SA               | TORRB4   | Energy      | \$9999.77   | 0.33            | \$3333.22    |
| 15:10             | \$9999.77      | AGL SA               | TORRB3   | Energy      | \$9999.77   | 0.25            | \$2458.94    |
|                   |                | AGL SA               | TORRB4   | Energy      | \$9999.77   | 0.25            | \$2458.94    |
|                   |                | AGL SA               | TORRB2   | Energy      | \$9999.77   | 0.25            | \$2458.94    |
|                   |                | AGL SA               | TORRA4   | Energy      | \$9999.77   | 0.13            | \$1311.47    |
|                   |                | AGL SA               | TORRA1   | Energy      | \$9999.77   | 0.13            | \$1311.47    |
| 15:15             | \$9999.77      | AGL SA               | TORRB3   | Energy      | \$9999.77   | 0.25            | \$2458.94    |
|                   |                | AGL SA               | TORRB2   | Energy      | \$9999.77   | 0.25            | \$2458.94    |
|                   |                | AGL SA               | TORRA4   | Energy      | \$9999.77   | 0.13            | \$1311.47    |
|                   |                | AGL SA               | TORRA1   | Energy      | \$9999.77   | 0.13            | \$1311.47    |
|                   |                | AGL SA               | TORRB4   | Energy      | \$9999.77   | 0.25            | \$2458.94    |
| 15:20             | \$9999.07      | TRUenergy (Vic)      | YWPS1    | Lower 5 min | \$0.05      | -1.00           | -\$0.05      |
|                   |                | AGL SA               | TORRB4   | Lower reg   | \$0.25      | 0.25            | \$0.06       |
|                   |                | AGL SA               | TORRB3   | Lower reg   | \$0.25      | 0.25            | \$0.06       |
|                   |                | AGL SA               | TORRB2   | Lower reg   | \$0.25      | 0.25            | \$0.06       |
|                   |                | AGL SA               | TORRB1   | Lower reg   | \$0.25      | 0.25            | \$0.06       |
|                   |                | Hydro Tasmania       | JBUTTERS | Lower reg   | \$1.30      | -1.00           | -\$1.30      |
|                   |                | Hydro Tasmania       | GORDON   | Lower 5 min | \$0.40      | 1.00            | \$0.40       |
|                   |                | AGL SA               | TORRB2   | Energy      | \$9999.77   | 0.25            | \$2499.94    |
|                   |                | AGL SA               | TORRB4   | Energy      | \$9999.77   | 0.25            | \$2499.94    |
|                   |                | AGL SA               | TORRB3   | Energy      | \$9999.77   | 0.25            | \$2499.94    |
|                   |                | AGL SA               | TORRB1   | Energy      | \$9999.77   | 0.25            | \$2499.94    |
| 15:25             | \$9999.77      | AGL SA               | TORRB3   | Energy      | \$9999.77   | 0.20            | \$1973.65    |
|                   |                | AGL SA               | TORRB2   | Energy      | \$9999.77   | 0.20            | \$1973.65    |
|                   |                | AGL SA               | TORRB4   | Energy      | \$9999.77   | 0.20            | \$1973.65    |
|                   |                | AGL SA               | TORRA1   | Energy      | \$9999.77   | 0.11            | \$1052.58    |
|                   |                | AGL SA               | TORRA4   | Energy      | \$9999.77   | 0.11            | \$1052.58    |
|                   |                | AGL SA               | TORRB1   | Energy      | \$9999.77   | 0.20            | \$1973.65    |
| 15:30             | \$9999.77      | AGL SA               | TORRB2   | Energy      | \$9999.77   | 0.20            | \$1973.65    |
|                   |                | AGL SA               | TORRB3   | Energy      | \$9999.77   | 0.20            | \$1973.65    |
|                   |                | AGL SA               | TORRB4   | Energy      | \$9999.77   | 0.20            | \$1973.65    |
|                   |                | AGL SA               | TORRB1   | Energy      | \$9999.77   | 0.20            | \$1973.65    |
|                   |                | AGL SA               | TORRA4   | Energy      | \$9999.77   | 0.11            | \$1052.58    |
|                   |                | AGL SA               | TORRA1   | Energy      | \$9999.77   | 0.11            | \$1052.58    |
| <b>Spot price</b> |                | <b>\$9999.65/MWh</b> |          |             |             |                 |              |



### South Australia 19 November – 4 pm

| Time              | Dispatch price | Participant          | Unit   | Service | Offer price | Marginal change | Contribution |
|-------------------|----------------|----------------------|--------|---------|-------------|-----------------|--------------|
| 15:35             | \$9999.77      | AGL SA               | TORRB2 | Energy  | \$9999.77   | 0.20            | \$1973.65    |
|                   |                | AGL SA               | TORRB3 | Energy  | \$9999.77   | 0.20            | \$1973.65    |
|                   |                | AGL SA               | TORRB4 | Energy  | \$9999.77   | 0.20            | \$1973.65    |
|                   |                | AGL SA               | TORRA4 | Energy  | \$9999.77   | 0.11            | \$1052.58    |
|                   |                | AGL SA               | TORRA1 | Energy  | \$9999.77   | 0.11            | \$1052.58    |
|                   |                | AGL SA               | TORRB1 | Energy  | \$9999.77   | 0.20            | \$1973.65    |
| 15:40             | \$9999.77      | AGL SA               | TORRB3 | Energy  | \$9999.77   | 0.20            | \$1973.65    |
|                   |                | AGL SA               | TORRB2 | Energy  | \$9999.77   | 0.20            | \$1973.65    |
|                   |                | AGL SA               | TORRB1 | Energy  | \$9999.77   | 0.20            | \$1973.65    |
|                   |                | AGL SA               | TORRA4 | Energy  | \$9999.77   | 0.11            | \$1052.58    |
|                   |                | AGL SA               | TORRA1 | Energy  | \$9999.77   | 0.11            | \$1052.58    |
|                   |                | AGL SA               | TORRB4 | Energy  | \$9999.77   | 0.20            | \$1973.65    |
| 15:45             | \$9999.77      | AGL SA               | TORRB3 | Energy  | \$9999.77   | 0.22            | \$2205.85    |
|                   |                | AGL SA               | TORRB2 | Energy  | \$9999.77   | 0.22            | \$2205.85    |
|                   |                | AGL SA               | TORRB1 | Energy  | \$9999.77   | 0.22            | \$2205.85    |
|                   |                | AGL SA               | TORRA1 | Energy  | \$9999.77   | 0.12            | \$1176.47    |
|                   |                | AGL SA               | TORRB4 | Energy  | \$9999.77   | 0.22            | \$2205.85    |
| 15:50             | \$9999.77      | AGL SA               | TORRB1 | Energy  | \$9999.77   | 0.33            | \$3260.82    |
|                   |                | AGL SA               | TORRA4 | Energy  | \$9999.77   | 0.17            | \$1739.06    |
|                   |                | AGL SA               | TORRA1 | Energy  | \$9999.77   | 0.17            | \$1739.06    |
|                   |                | AGL SA               | TORRB2 | Energy  | \$9999.77   | 0.33            | \$3260.82    |
| 15:55             | \$9999.77      | AGL SA               | TORRA1 | Energy  | \$9999.77   | 0.50            | \$4999.89    |
|                   |                | AGL SA               | TORRA4 | Energy  | \$9999.77   | 0.50            | \$4999.89    |
| 16:00             | \$9999.77      | AGL SA               | TORRB4 | Energy  | \$9999.77   | 0.33            | \$3260.82    |
|                   |                | AGL SA               | TORRB2 | Energy  | \$9999.77   | 0.33            | \$3260.82    |
|                   |                | AGL SA               | TORRA4 | Energy  | \$9999.77   | 0.17            | \$1739.06    |
|                   |                | AGL SA               | TORRA1 | Energy  | \$9999.77   | 0.17            | \$1739.06    |
| <b>Spot price</b> |                | <b>\$9999.77/MWh</b> |        |         |             |                 |              |

### South Australia 19 November – 4.30 pm

| Time              | Dispatch price | Participant          | Unit   | Service   | Offer price | Marginal change | Contribution |
|-------------------|----------------|----------------------|--------|-----------|-------------|-----------------|--------------|
| 16:05             | \$9999.77      | AGL SA               | TORRA1 | Energy    | \$9999.77   | 0.11            | \$1052.58    |
|                   |                | AGL SA               | TORRB2 | Energy    | \$9999.77   | 0.20            | \$1973.65    |
|                   |                | AGL SA               | TORRB4 | Energy    | \$9999.77   | 0.20            | \$1973.65    |
|                   |                | AGL SA               | TORRB3 | Energy    | \$9999.77   | 0.20            | \$1973.65    |
|                   |                | AGL SA               | TORRA4 | Energy    | \$9999.77   | 0.11            | \$1052.58    |
|                   |                | AGL SA               | TORRB1 | Energy    | \$9999.77   | 0.20            | \$1973.65    |
| 16:10             | \$9999.77      | AGL SA               | TORRA4 | Energy    | \$9999.77   | 0.26            | \$2580.54    |
|                   |                | AGL SA               | TORRA1 | Energy    | \$9999.77   | 0.26            | \$2580.54    |
|                   |                | AGL SA               | TORRB2 | Energy    | \$9999.77   | 0.48            | \$4838.59    |
| 16:15             | \$9999.77      | AGL SA               | TORRB4 | Energy    | \$9999.77   | 0.20            | \$1973.65    |
|                   |                | AGL SA               | TORRB2 | Energy    | \$9999.77   | 0.20            | \$1973.65    |
|                   |                | AGL SA               | TORRB1 | Energy    | \$9999.77   | 0.20            | \$1973.65    |
|                   |                | AGL SA               | TORRA4 | Energy    | \$9999.77   | 0.11            | \$1052.58    |
|                   |                | AGL SA               | TORRA1 | Energy    | \$9999.77   | 0.11            | \$1052.58    |
|                   |                | AGL SA               | TORRB3 | Energy    | \$9999.77   | 0.20            | \$1973.65    |
| 16:20             | \$9999.77      | AGL SA               | TORRB3 | Energy    | \$9999.77   | 0.25            | \$2458.94    |
|                   |                | AGL SA               | TORRB2 | Energy    | \$9999.77   | 0.25            | \$2458.94    |
|                   |                | AGL SA               | TORRB4 | Energy    | \$9999.77   | 0.25            | \$2458.94    |
|                   |                | AGL SA               | TORRA4 | Energy    | \$9999.77   | 0.13            | \$1311.47    |
|                   |                | AGL SA               | TORRA1 | Energy    | \$9999.77   | 0.13            | \$1311.47    |
|                   |                | AGL SA               | TORRB4 | Energy    | \$9999.77   | 0.25            | \$2458.94    |
| 16:25             | \$9999.77      | AGL SA               | TORRB4 | Lower reg | \$0.80      | 0.25            | \$0.20       |
|                   |                | AGL SA               | TORRB3 | Lower reg | \$0.80      | 0.25            | \$0.20       |
|                   |                | AGL SA               | TORRB2 | Lower reg | \$0.80      | -0.49           | -\$0.39      |
|                   |                | AGL SA               | TORRB3 | Energy    | \$9999.77   | 0.25            | \$2458.94    |
|                   |                | AGL SA               | TORRB2 | Energy    | \$9999.77   | 0.25            | \$2458.94    |
|                   |                | AGL SA               | TORRA4 | Energy    | \$9999.77   | 0.13            | \$1311.47    |
|                   |                | AGL SA               | TORRA1 | Energy    | \$9999.77   | 0.13            | \$1311.47    |
|                   |                | AGL SA               | TORRB4 | Energy    | \$9999.77   | 0.25            | \$2458.94    |
| 16:30             | \$9999.77      | AGL SA               | TORRB3 | Lower reg | \$0.80      | -0.25           | -\$0.20      |
|                   |                | AGL SA               | TORRB2 | Lower reg | \$0.80      | 0.25            | \$0.20       |
|                   |                | AGL SA               | TORRB3 | Energy    | \$9999.77   | 0.25            | \$2458.94    |
|                   |                | AGL SA               | TORRB2 | Energy    | \$9999.77   | 0.25            | \$2458.94    |
|                   |                | AGL SA               | TORRA4 | Energy    | \$9999.77   | 0.13            | \$1311.47    |
|                   |                | AGL SA               | TORRA1 | Energy    | \$9999.77   | 0.13            | \$1311.47    |
|                   |                | AGL SA               | TORRB4 | Energy    | \$9999.77   | 0.25            | \$2458.94    |
| <b>Spot price</b> |                | <b>\$9999.77/MWh</b> |        |           |             |                 |              |

## South Australia 19 November – 5 pm

| Time              | Dispatch price | Participant          | Unit   | Service   | Offer price | Marginal change | Contribution |
|-------------------|----------------|----------------------|--------|-----------|-------------|-----------------|--------------|
| 16:35             | \$9999.77      | AGL SA               | TORRB4 | Lower reg | \$0.80      | 0.20            | \$0.16       |
|                   |                | AGL SA               | TORRB2 | Lower reg | \$0.80      | -0.20           | -\$0.16      |
|                   |                | AGL SA               | TORRB2 | Energy    | \$9999.77   | 0.20            | \$1973.65    |
|                   |                | AGL SA               | TORRB1 | Energy    | \$9999.77   | 0.20            | \$1973.65    |
|                   |                | AGL SA               | TORRB3 | Energy    | \$9999.77   | 0.20            | \$1973.65    |
|                   |                | AGL SA               | TORRA4 | Energy    | \$9999.77   | 0.11            | \$1052.58    |
|                   |                | AGL SA               | TORRA1 | Energy    | \$9999.77   | 0.11            | \$1052.58    |
|                   |                | AGL SA               | TORRB4 | Energy    | \$9999.77   | 0.20            | \$1973.65    |
| 16:40             | \$9999.77      | AGL SA               | TORRB3 | Energy    | \$9999.77   | 0.25            | \$2458.94    |
|                   |                | AGL SA               | TORRB2 | Energy    | \$9999.77   | 0.25            | \$2458.94    |
|                   |                | AGL SA               | TORRA4 | Energy    | \$9999.77   | 0.13            | \$1311.47    |
|                   |                | AGL SA               | TORRA1 | Energy    | \$9999.77   | 0.13            | \$1311.47    |
|                   |                | AGL SA               | TORRB4 | Energy    | \$9999.77   | 0.25            | \$2458.94    |
| 16:45             | \$9999.77      | AGL SA               | TORRB3 | Energy    | \$9999.77   | 0.20            | \$1973.65    |
|                   |                | AGL SA               | TORRB1 | Energy    | \$9999.77   | 0.20            | \$1973.65    |
|                   |                | AGL SA               | TORRB2 | Energy    | \$9999.77   | 0.20            | \$1973.65    |
|                   |                | AGL SA               | TORRA4 | Energy    | \$9999.77   | 0.11            | \$1052.58    |
|                   |                | AGL SA               | TORRA1 | Energy    | \$9999.77   | 0.11            | \$1052.58    |
|                   |                | AGL SA               | TORRB4 | Energy    | \$9999.77   | 0.20            | \$1973.65    |
| 16:50             | \$9999.77      | AGL SA               | TORRB4 | Energy    | \$9999.77   | 0.20            | \$1973.65    |
|                   |                | AGL SA               | TORRB3 | Energy    | \$9999.77   | 0.20            | \$1973.65    |
|                   |                | AGL SA               | TORRB2 | Energy    | \$9999.77   | 0.20            | \$1973.65    |
|                   |                | AGL SA               | TORRA4 | Energy    | \$9999.77   | 0.11            | \$1052.58    |
|                   |                | AGL SA               | TORRA1 | Energy    | \$9999.77   | 0.11            | \$1052.58    |
|                   |                | AGL SA               | TORRB1 | Energy    | \$9999.77   | 0.20            | \$1973.65    |
| 16:55             | \$9999.77      | AGL SA               | TORRA1 | Energy    | \$9999.77   | 0.50            | \$4999.89    |
|                   |                | AGL SA               | TORRA4 | Energy    | \$9999.77   | 0.50            | \$4999.89    |
| 17:00             | \$9999.77      | AGL SA               | TORRA1 | Energy    | \$9999.77   | 0.13            | \$1311.47    |
|                   |                | AGL SA               | TORRB4 | Energy    | \$9999.77   | 0.25            | \$2458.94    |
|                   |                | AGL SA               | TORRB1 | Energy    | \$9999.77   | 0.25            | \$2458.94    |
|                   |                | AGL SA               | TORRB3 | Energy    | \$9999.77   | 0.25            | \$2458.94    |
|                   |                | AGL SA               | TORRA4 | Energy    | \$9999.77   | 0.13            | \$1311.47    |
| <b>Spot price</b> |                | <b>\$9999.77/MWh</b> |        |           |             |                 |              |

## South Australia 19 November – 5.30 pm

| Time              | Dispatch price | Participant          | Unit    | Service     | Offer price | Marginal change | Contribution |
|-------------------|----------------|----------------------|---------|-------------|-------------|-----------------|--------------|
| 17:05             | \$9999.77      | AGL SA               | TORRA1  | Energy      | \$9999.77   | 0.50            | \$4999.89    |
|                   |                | AGL SA               | TORRA4  | Energy      | \$9999.77   | 0.50            | \$4999.89    |
| 17:10             | \$9997.32      | Delta Electricity    | VP5     | Lower reg   | \$2.70      | -1.00           | -\$2.70      |
|                   |                | AGL SA               | TORRB4  | Lower reg   | \$0.25      | 0.33            | \$0.08       |
|                   |                | AGL SA               | TORRB3  | Lower reg   | \$0.25      | 0.33            | \$0.08       |
|                   |                | AGL SA               | TORRB2  | Lower reg   | \$0.25      | 0.33            | \$0.08       |
|                   |                | AGL SA               | TORRB4  | Energy      | \$9999.77   | 0.33            | \$3333.22    |
|                   |                | AGL SA               | TORRB3  | Energy      | \$9999.77   | 0.33            | \$3333.22    |
|                   |                | AGL SA               | TORRB2  | Energy      | \$9999.77   | 0.33            | \$3333.22    |
| 17:15             | \$9998.62      | Stanwell             | STAN-2  | Lower reg   | \$1.95      | -1.00           | -\$1.95      |
|                   |                | AGL SA               | TORRB4  | Energy      | \$9999.77   | 0.33            | \$3333.22    |
|                   |                | AGL SA               | TORRB3  | Energy      | \$9999.77   | 0.33            | \$3333.22    |
|                   |                | AGL SA               | TORRB2  | Energy      | \$9999.77   | 0.33            | \$3333.22    |
|                   |                | AGL SA               | TORRB4  | Lower reg   | \$0.80      | 0.33            | \$0.27       |
|                   |                | AGL SA               | TORRB3  | Lower reg   | \$0.80      | 0.33            | \$0.27       |
|                   |                | AGL SA               | TORRB2  | Lower reg   | \$0.80      | 0.33            | \$0.27       |
| 17:20             | \$9998.57      | Delta Electricity    | WW7     | Lower reg   | \$2.00      | -1.00           | -\$2.00      |
|                   |                | AGL SA               | TORRB4  | Lower reg   | \$0.80      | 0.33            | \$0.27       |
|                   |                | AGL SA               | TORRB3  | Lower reg   | \$0.80      | 0.33            | \$0.27       |
|                   |                | AGL SA               | TORRB2  | Lower reg   | \$0.80      | 0.33            | \$0.27       |
|                   |                | AGL SA               | TORRB4  | Energy      | \$9999.77   | 0.33            | \$3333.22    |
|                   |                | AGL SA               | TORRB3  | Energy      | \$9999.77   | 0.33            | \$3333.22    |
|                   |                | AGL SA               | TORRB2  | Energy      | \$9999.77   | 0.33            | \$3333.22    |
| 17:25             | \$9998.02      | AGL SA               | TORRB4  | Lower reg   | \$0.25      | 0.33            | \$0.08       |
|                   |                | AGL SA               | TORRB3  | Lower reg   | \$0.25      | 0.33            | \$0.08       |
|                   |                | AGL SA               | TORRB2  | Lower reg   | \$0.25      | 0.33            | \$0.08       |
|                   |                | Hydro Tasmania       | POAT110 | Lower reg   | \$2.00      | -1.00           | -\$2.00      |
|                   |                | Hydro Tasmania       | POAT110 | Raise 6 sec | \$20.00     | 0.33            | \$6.67       |
|                   |                | Hydro Tasmania       | GORDON  | Raise 6 sec | \$20.00     | -0.33           | -\$6.67      |
|                   |                | AGL SA               | TORRB4  | Energy      | \$9999.77   | 0.33            | \$3333.22    |
|                   |                | AGL SA               | TORRB3  | Energy      | \$9999.77   | 0.33            | \$3333.22    |
|                   |                | AGL SA               | TORRB2  | Energy      | \$9999.77   | 0.33            | \$3333.22    |
| 17:30             | \$9998.07      | AGL SA               | TORRB4  | Lower reg   | \$0.25      | 0.33            | \$0.08       |
|                   |                | AGL SA               | TORRB3  | Lower reg   | \$0.25      | 0.33            | \$0.08       |
|                   |                | AGL SA               | TORRB2  | Lower reg   | \$0.25      | 0.33            | \$0.08       |
|                   |                | Stanwell             | GSTONE6 | Lower reg   | \$1.95      | -1.00           | -\$1.95      |
|                   |                | AGL SA               | TORRB4  | Energy      | \$9999.77   | 0.33            | \$3333.22    |
|                   |                | AGL SA               | TORRB3  | Energy      | \$9999.77   | 0.33            | \$3333.22    |
|                   |                | AGL SA               | TORRB2  | Energy      | \$9999.77   | 0.33            | \$3333.22    |
| <b>Spot price</b> |                | <b>\$9999.77/MWh</b> |         |             |             |                 |              |

## South Australia 19 November – 6 pm

| Time              | Dispatch price | Participant          | Unit    | Service     | Offer price | Marginal change | Contribution |
|-------------------|----------------|----------------------|---------|-------------|-------------|-----------------|--------------|
| 17:35             | \$9997.42      | Delta Electricity    | VP5     | Raise reg   | \$2.00      | -1.00           | -\$2.00      |
|                   |                | AGL SA               | TORRB1  | Lower reg   | \$0.80      | 1.00            | \$0.80       |
|                   |                | AGL SA               | TORRB1  | Raise reg   | \$0.80      | 1.00            | \$0.80       |
|                   |                | AGL SA               | TORRB1  | Energy      | \$9999.77   | 1.00            | \$9999.77    |
|                   |                | Stanwell             | GSTONE3 | Lower reg   | \$1.95      | -1.00           | -\$1.95      |
| 17:40             | \$9998.52      | Delta Electricity    | VP5     | Lower 5 min | \$1.50      | -1.00           | -\$1.50      |
|                   |                | AGL SA               | TORRB4  | Lower reg   | \$0.25      | 0.33            | \$0.08       |
|                   |                | AGL SA               | TORRB3  | Lower reg   | \$0.25      | 0.33            | \$0.08       |
|                   |                | AGL SA               | TORRB2  | Lower reg   | \$0.25      | 0.33            | \$0.08       |
|                   |                | AGL SA               | TORRB4  | Energy      | \$9999.77   | 0.33            | \$3333.22    |
|                   |                | AGL SA               | TORRB3  | Energy      | \$9999.77   | 0.33            | \$3333.22    |
|                   |                | AGL SA               | TORRB2  | Energy      | \$9999.77   | 0.33            | \$3333.22    |
| 17:45             | \$9998.52      | Delta Electricity    | VP5     | Lower 5 min | \$1.50      | -1.00           | -\$1.50      |
|                   |                | AGL SA               | TORRB4  | Lower reg   | \$0.25      | 0.33            | \$0.08       |
|                   |                | AGL SA               | TORRB3  | Lower reg   | \$0.25      | 0.33            | \$0.08       |
|                   |                | AGL SA               | TORRB2  | Lower reg   | \$0.25      | 0.33            | \$0.08       |
|                   |                | AGL SA               | TORRB3  | Energy      | \$9999.77   | 0.33            | \$3333.22    |
|                   |                | AGL SA               | TORRB2  | Energy      | \$9999.77   | 0.33            | \$3333.22    |
|                   |                | AGL SA               | TORRB4  | Energy      | \$9999.77   | 0.33            | \$3333.22    |
| 17:50             | \$299.40       | Synergen             | DRYCGT2 | Energy      | \$299.40    | 1.00            | \$299.40     |
| 17:55             | \$9997.97      | AGL SA               | TORRB4  | Lower reg   | \$0.25      | 0.50            | \$0.13       |
|                   |                | AGL SA               | TORRB4  | Raise reg   | \$0.80      | 0.50            | \$0.40       |
|                   |                | AGL SA               | TORRB1  | Energy      | \$9999.77   | 0.50            | \$4999.89    |
|                   |                | AGL SA               | TORRB1  | Lower reg   | \$0.25      | 0.50            | \$0.13       |
|                   |                | AGL SA               | TORRB1  | Raise reg   | \$0.80      | 0.50            | \$0.40       |
|                   |                | LYMMCO               | LYA1    | Raise reg   | \$0.90      | -1.00           | -\$0.90      |
|                   |                | Stanwell             | GSTONE1 | Lower reg   | \$1.95      | -1.00           | -\$1.95      |
|                   |                | AGL SA               | TORRB4  | Energy      | \$9999.77   | 0.50            | \$4999.89    |
| 18:00             | \$1703.46      | Snowy Hydro          | MURRAY  | Energy      | \$294.96    | 6.02            | \$1777.09    |
|                   |                | LYMMCO               | LYA3    | Energy      | \$15.30     | -4.81           | -\$73.63     |
| <b>Spot price</b> |                | <b>\$6999.21/MWh</b> |         |             |             |                 |              |