Spot prices greater than $5 000/MWh

AUSTRALIAN ENERGY REGULATOR

SOUTH AUSTRALIA 30 NOV 2005

Introduction

The AER is required to publish a report within 20 business days of the end of a week in which the spot price exceeded $5 000/MWh, pursuant to clause 3.13.7 (d) of the Rules. That report should:

- describe significant factors contributing to the spot price exceeding $5 000/MWh, including withdrawal of generation capacity and network availability;
- assess whether rebidding pursuant to clause 3.8.22 contributed to the spot price exceeding $5 000/MWh;
- identify the marginal scheduled generating units; and
- identify all units with offers for the trading interval equal to or greater than $5 000/MWh and compare these dispatch offers to relevant dispatch offers in previous trading intervals.

Description of the circumstances

On Wednesday 30 November, a short notice outage on the Victoria to South Australia interconnector, coinciding with a step change in the price of capacity offered to the market by TRU Energy at Torrens Island, led to the 4pm trading price reaching $5 000/MWh.

From 3.05pm, import capability across the Heywood interconnector was ramped down from 460MW to 200MW over the next half hour. This reduction occurred in order to take one circuit of the interconnector, in South Australia, out of service from around 3.45pm to 4.05pm. There was no prior notice given for this outage.

Over the previous couple of weeks, a trend in the price of capacity offered by TRU Energy at Torrens Island emerged. This saw, through the initial offers made the previous day, half of the available capacity, which was priced at less than $300/MWh for much of the day, replaced with capacity priced at more than $5 000/MWh for the hour between 3pm and 4pm.

The combination of reduced imports and the step change in offer prices led to eight 5-minute dispatch interval prices of $5 000/MWh between 3.25pm and 4pm. The half-hour spot price at 4pm was also $5 000/MWh.

The spot price and how those prices were determined by the market systems are detailed in Appendix 1.

The contributing factors

The spot price reached $5 000/MWh in South Australia on Wednesday 30 November at 4pm. The contributing factors to market prices can be categorised into:

- market forecasts;
- changes to network availability;
- rebidding, including changes to generation capacity; and
- offer prices.

Market forecasts. Figure 1 shows, for the 4pm trading interval, actual price, demand and available capacity in South Australia, and compares it with that forecast 4 and 12 hours ahead of dispatch. The constraints limiting flows on the Heywood interconnector are also included.

Figure 1: South Australia actual and forecast information

Wednesday, 30 November

4:00 pm	**Actual**	**4 hr forecast**	**12 hr forecast**
Price ($/MWh)	5 000.00	55.80	57.43
Demand (MW)	1 874	1 760	1 745
Available capacity (MW)	2 351	2 397	2 403
V-SA export capability	184	460	460
Constraint ID	V>S_SETB	VS_460	VS_460

Conditions at the time saw demand around 100MW higher than forecast four hours to dispatch.

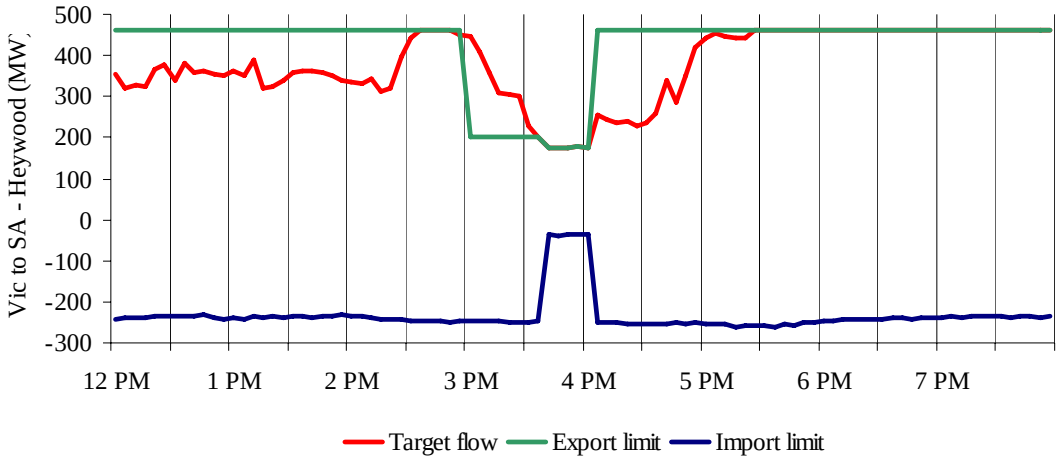
Changes to network availability. At around 3pm, constraints were invoked, effective immediately, to ramp down the import capability across the Heywood interconnector from 460MW to 200MW. This was in preparation for an outage of the South East to Tailem Bend line, in South Australia, which was out of service from around 3.45pm to 4.05pm. No notice was given for the outage. The outage was required to return critical plant that had been undergoing emergency repairs following damage that had occurred on the previous day.

As a result of the short notice outage, flows from Victoria were around 260MW lower than forecast four and 12 hours ahead. Flows across the MurrayLink interconnector were as forecast. The full import capability was returned at 4.10pm.

If notice of this outage had been provided some hours beforehand, this would have been reflected in the market forecasts, particularly in increased prices, and may have elicited a market response.

Figure 2 highlights the step change in capability for flows into South Australia from Victoria (or imports across the Heywood interconnector).[1]

Figure 2: Vic-SA (Heywood) capability and target flow, Wednesday 30 November



Rebidding. At 3.25pm, effective from 3.35pm, International Power rebid 20MW of capacity from prices of more than $9 000/MWh to $1 000/MWh. The rebid reason given was "Change in forecast prices". International Power had priced 80MW of its 240MW of capacity at Pelican Point at more than $9 000/MWh between 4am and 5pm. This capacity was priced at less than $50/MWh during the remainder of the day.

Available capacity was 46MW lower than expected four hours ahead. Most of this was from reductions in availability at NRG Flinders Osborne and Playford stations by 10MW and 30MW respectively.

Rebidding did not contribute to the spot price reaching $5 000/MWh.

Offer prices. As part of a day-ahead offer, TRU Energy set up a step change in the price of capacity at Torrens Island for the period between 3pm and 4pm. This step change saw 370MW of capacity, which was priced at less than $300/MWh for most of the day, replaced with prices of $5 000/MWh from 3.05pm. This capacity remained at these prices until 4pm, when most of the capacity reverted to prices of less than $50/MWh. As a result, half of the capacity at Torrens Island was priced at $5 000/MWh or above during the period of the outage.

Between 4am and 5pm, International Power, as part of its day-ahead offer, offered 80MW or a third of its capacity at Pelican Point at prices above $9 000/MWh. This capacity was priced at less than $40/MWh at other times of the day.

For the 4pm trading interval there was 15MW of capacity at Osborne priced at $51/MWh, 40MW at Angaston priced around $300/MWh and 20MW at Pelican Point priced at $1 000/MWh. This 75MW of capacity was all that was offered between $40/MWh and $5 000/MWh.

The combination of the network outage, higher than forecast demand and the offer profile in SA contributed to the price reaching $5 000/MWh at 4pm.

[1] Where the red target flow is not visible, the interconnector flow is equal to the green export limit. Note that the export limit between 3.05pm and 3.40pm is a lower limit than required, which is intended to ramp down the limit ahead of planned outages.

Figures 3 and 4 present the capacity offered into the market within a series of price thresholds by TRU Energy at Torrens Island, and International Power at Pelican Point, for Wednesday 30 November. Spot price and dispatched generation are overlaid. It highlights the capacity presented at high prices.

Figure 3: TRU Energy closing bid prices, dispatch and region price - 30 November.

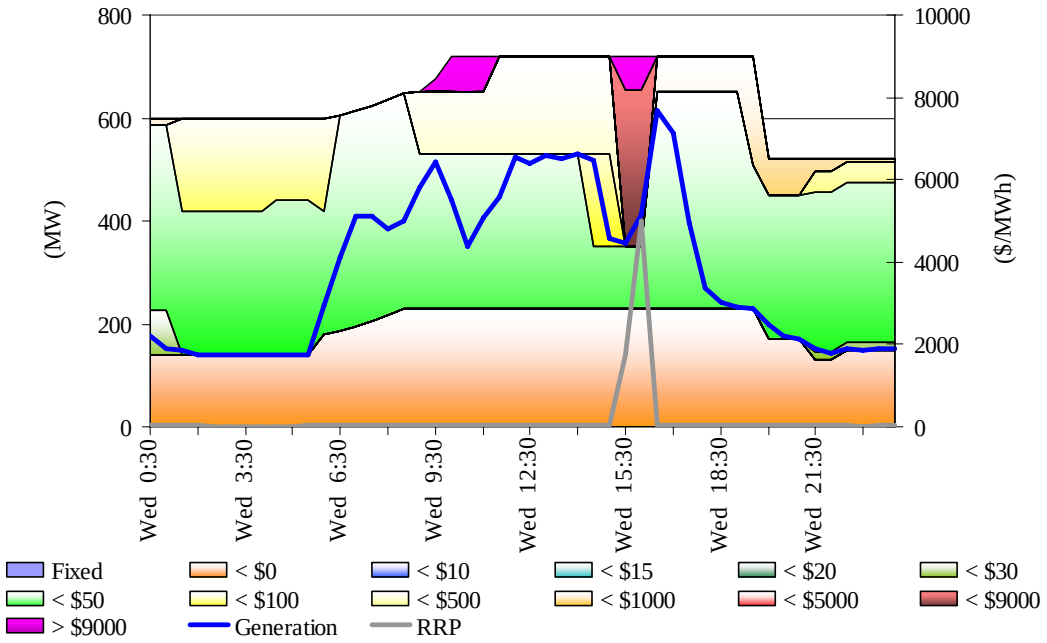
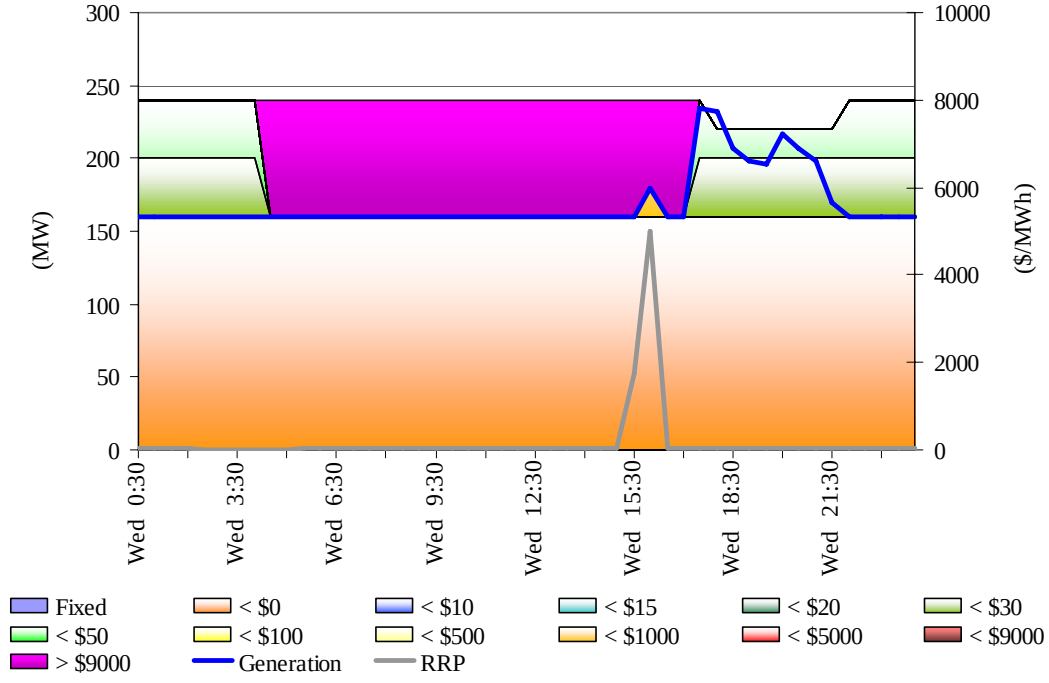


Figure 4: International Power closing bid prices, dispatch and price - 30 November.



Australian Energy Regulator
January 2006

APPENDIX 1 – Price setters

The following table identifies for each trading interval in which the spot price exceeded $5 000/MWh, every five minute dispatch interval price and the generating units, as published in the market systems, involved in setting the energy price. This information is published by NEMMCO[2]. Also shown is the energy offer price involved in determining the dispatch price together with the quantity and the contribution to the total energy price. The 30 minute spot price is the time weighted average of the six dispatch interval prices.

Wednesday 30 November – South Australia 4pm

Time	Dispatch price	Participant	unit	Service	Offer	Marginal change	Portion
15:35	$5,000.00	TRU Energy(SA)	TORRA3	Energy	$5,000.00	0.21	$1,065.57
			TORRB1	Energy	$5,000.00	0.26	$1,311.48
			TORRB2	Energy	$5,000.00	0.26	$1,311.48
			TORRB4	Energy	$5,000.00	0.26	$1,311.48
15:40	$5,000.00	TRU Energy(SA)	TORRA3	Energy	$5,000.00	0.21	$1,065.57
			TORRB1	Energy	$5,000.00	0.26	$1,311.48
			TORRB2	Energy	$5,000.00	0.26	$1,311.48
			TORRB4	Energy	$5,000.00	0.26	$1,311.48
15:45	$5,000.00	TRU Energy(SA)	TORRA3	Energy	$5,000.00	0.21	$1,065.57
			TORRB1	Energy	$5,000.00	0.26	$1,311.48
			TORRB2	Energy	$5,000.00	0.26	$1,311.48
			TORRB4	Energy	$5,000.00	0.26	$1,311.48
15:50	$5,000.00	TRU Energy(SA)	TORRA3	Energy	$5,000.00	0.21	$1,065.57
			TORRB1	Energy	$5,000.00	0.26	$1,311.48
			TORRB2	Energy	$5,000.00	0.26	$1,311.48
			TORRB4	Energy	$5,000.00	0.26	$1,311.48
15:55	$5,000.00	TRU Energy(SA)	TORRA3	Energy	$5,000.00	0.21	$1,065.57
			TORRB1	Energy	$5,000.00	0.26	$1,311.48
			TORRB2	Energy	$5,000.00	0.26	$1,311.48
			TORRB4	Energy	$5,000.00	0.26	$1,311.48
16:00	$5,000.00	TRU Energy(SA)	TORRA3	Energy	$5,000.00	0.21	$1,065.57
			TORRB1	Energy	$5,000.00	0.26	$1,311.48
			TORRB2	Energy	$5,000.00	0.26	$1,311.48
			TORRB4	Energy	$5,000.00	0.26	$1,311.48
Spot price	**$5 000.00**						

[2] NEMMCO first published details on how the price is determined, for every dispatch interval, in June 2004. Documentation of this process can be found at http://www.nemmco.com.au/dispatchandpricing/140-0036.htm