

Spot prices greater than \$5000/MWh



AUSTRALIAN ENERGY
REGULATOR

Queensland – 20 November 2008

Introduction

The AER is required to publish a report covering the circumstances in which the spot price exceeded \$5000/MWh, pursuant to clause 3.13.7 (d) of the 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/assessment

Unplanned reductions in Queensland generator availability together with low import capability into Queensland and higher than forecast demand led to a tight supply/demand situation on Thursday 20 November in Queensland. Rebidding by Millmerran Energy Trader and Stanwell Corporation shifted low priced capacity to close to the price cap. A combination of the rebidding and the tight supply/demand saw the spot price exceed \$5000/MWh for the 2.30 pm trading interval.

Actual and forecast demand

At the relevant time, demand was about 130 MW greater than that forecast four hours ahead. Demand was approximately 180 MW greater than that forecast twelve hours ahead.

Figure 1 compares the actual demand in Queensland with that forecast by NEMMCO four and twelve hours ahead of dispatch. A comparison of actual and forecast spot price and total available generation capacity is also included.

Figure 1: Actual and forecast demand and spot price in Queensland

Thursday 2:30 PM	Actual	4 hr forecast	12 hr forecast
Demand (MW)	7400	7269	7212
Spot Price (\$MW/h)	5061.39	244.49	35.80
Available capacity (MW)	8859	9097	9602

Generator offers and rebidding

Around 1000 MW of generation was unavailable on the day due to planned outages at Tarong, Callide B and Gladstone. A further 900 MW became unavailable on the day due to unscheduled plant capacity reductions, including at Swanbank, Stanwell and Callide C.

As shown in figure 1, the physical availability of Queensland generation for the 2.30 pm trading interval was significantly lower than forecast. Physical availability was approximately 250 MW lower than that forecast four hours ahead and 750 MW lower than that forecast 12 hours ahead.

In addition rebidding by Millmerran Energy Trader and Stanwell Corporation shifted up to 380 MW of low priced capacity to close to the price cap.

At 3.40 am, CS Energy Ltd reduced the available capacity from its Swanbank B units one, two and three by a total of 360 MW, all of which was priced below \$70/MWh. The reason given was “SWANBANK COOLING MAKE-UP WATER PROBLEM”. Further rebids at 9.06 am and 11.14 am resulted in a reduction of around 200 MW of available capacity at Swanbank Unit E, all of which was priced below \$100/MWh. The reason given for both rebids was “MANAGE COOLING WATER LIMITATIONS”.

At 7.58 am, Millmerran Energy Trader rebid 90 MW of capacity from prices below \$50/MWh to above \$9000/MWh. The reason given was “CHANGE IN PREDISPATCH::CHANGE MW DISTRIBUTION”. At 12.06 pm a further 50 MW of capacity was shifted from prices below \$10/MWh to above \$9000/MWh. The reason given was “CHANGED PD::ADJUST MW DIST”.

From 1.25 pm Stanwell Corporation made several rebids which in total reduced the available capacity of Stanwell unit two by 100 MW (all of which was priced below \$40/MWh). The reason given was “MILL LIMITATIONS::CHANGE AVAILABILITY”.

In addition, at 1.59 pm Stanwell Corporation rebid its Gladstone units, so that 160 MW of capacity was moved from prices below \$80/MWh to above \$9000/MWh and 80 MW moved from prices below \$500/MWh to \$4670/MWh. A further rebid at 2.22 pm, effective for the 2.30 pm dispatch interval, shifted the 80 MW priced at \$4670/MWh to above \$9000/MWh. The reason given on both occasions was “MANAGE TRANSMISSION CONSTRAINT::CHANGE MW DISTRIB”.

At 2.18 pm Callide Power Trading’s Callide C unit three reduced its output below its target by around 160 MW because of a clinker fall. This reduction in availability was reflected in a rebid at 2.21 pm, effective for the 2.30 pm dispatch interval, that reduced available capacity by 195 MW (all of which was priced below \$15/MWh). This rebid was first used for the 2.30 pm dispatch interval.

The closing bids for all participants on the mainland with capacity priced at or above \$5000/MWh during the high priced period are presented in **Appendix A**. The generators involved in setting the spot price during the time prices were above \$5000/MWh, and how that price was determined by the market systems, are detailed in **Appendix B**.

In summary, there was a significant degree of reduced generation capacity at the relevant time. Significant rebidding by several generators in such conditions was a significant factor in increasing the price.

Changes to network availability

Combined imports into Queensland across the two interconnectors were limited due to a system normal constraint to around 130 MW at 2.30 pm. However, this limit was close to the forecast limit and was not a significant factor in the 2:30 pm spot price. The system normal limit is to avoid voltage collapse on the loss of the largest generator in Queensland, the Kogan Creek Power Station.

Appendix A – Closing bids for 20 November 2008

Figures A1 – A4 highlight the half hour closing bids for participants with capacity priced at or above \$5000/MWh during the trading interval in which the spot price exceeded \$5000/MWh. It also shows the generation output of that participant and the spot price.

Figure A1: Millmerran closing bid prices, dispatch and spot price on 20 November

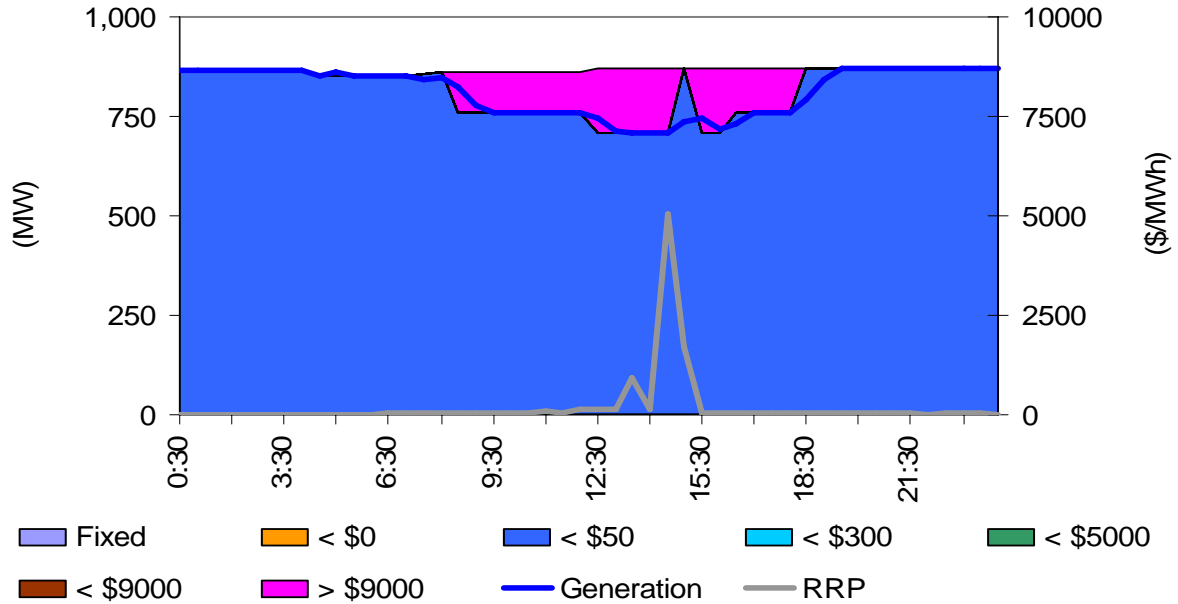


Figure A2: Stanwell closing bid prices, dispatch and spot price on 20 November

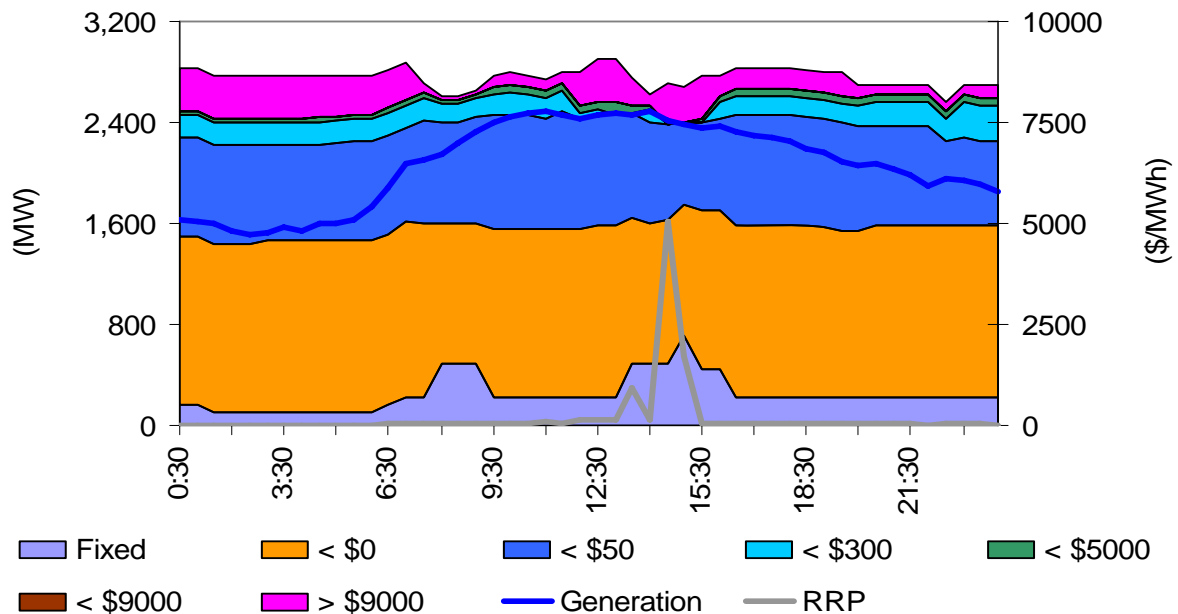


Figure A3: Origin Energy closing bid prices, dispatch and spot price on 20 November

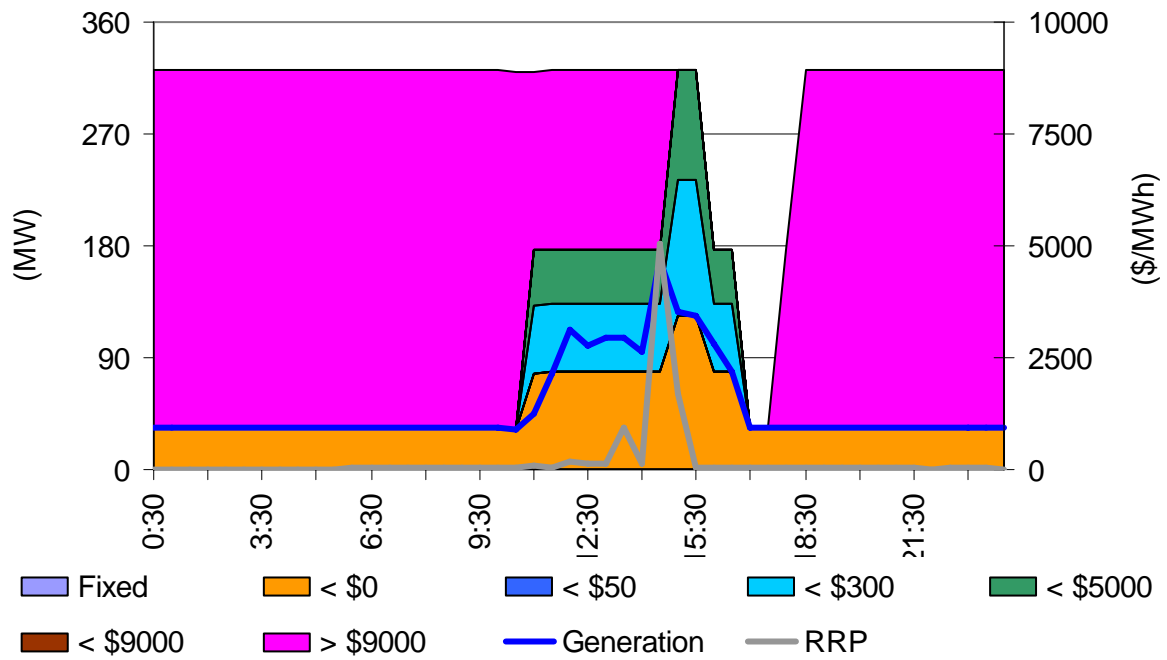
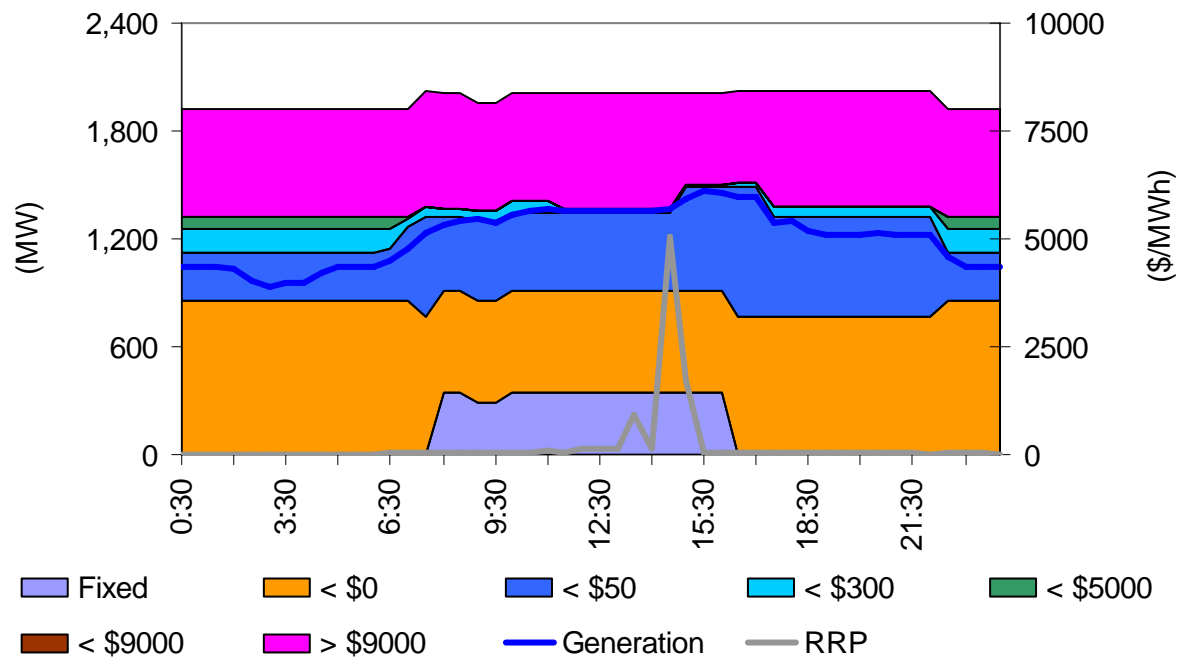


Figure A4: Tarong closing bid prices, dispatch and spot price on 20 November



Appendix B – Price setters for the 2.30 pm trading interval

The following table identifies 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 NEMMCO¹. 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.

Thursday 20 November – Queensland– 2.30 pm

Time	Dispatch price	Participant	Unit	Service	Offer price	Marginal change	Contribution
14:05	\$9,994.90	Stanwell	GSTONE2	Energy	\$9,994.90	0.33	\$3,331.60
		Stanwell	GSTONE4	Energy	\$9,994.90	0.33	\$3,331.60
		Stanwell	GSTONE5	Energy	\$9,994.90	0.33	\$3,331.60
14:10	\$4,995.05	Stanwell	GSTONE1	Energy	\$4,995.05	0.50	\$2,497.53
		Stanwell	GSTONE2	Energy	\$4,995.05	0.50	\$2,497.53
14:15	\$69.78	AGL Hydro	OAKEY2	Energy	\$69.78	1.00	\$69.78
14:20	\$4,995.05	Stanwell	GSTONE1	Energy	\$4,995.05	0.25	\$1,248.76
		Stanwell	GSTONE2	Energy	\$4,995.05	0.25	\$1,248.76
		Stanwell	GSTONE4	Energy	\$4,995.05	0.25	\$1,248.76
		Stanwell	GSTONE5	Energy	\$4,995.05	0.25	\$1,248.76
14:25	\$318.65	Origin Energy	MSTUART2	Energy	\$318.65	1.00	\$318.65
14:30	\$9,994.90	Stanwell	GSTONE1	Energy	\$9,994.90	0.25	\$2,498.73
		Stanwell	GSTONE2	Energy	\$9,994.90	0.25	\$2,498.73
		Stanwell	GSTONE4	Energy	\$9,994.90	0.25	\$2,498.73
		Stanwell	GSTONE5	Energy	\$9,994.90	0.25	\$2,498.73
Spot price		\$5061.39/MWh					

¹ 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>