

Electricity spot prices above \$5000/MWh

22 May 2010
Tasmania



AUSTRALIAN ENERGY
REGULATOR

Introduction

The AER is required to publish a report whenever the electricity spot price exceeds \$5000/MWh.¹ The report:

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

Summary

On Saturday 22 May 2010, the spot price in Tasmania reached \$6750/MWh for the 6.30 pm trading interval.

Day-ahead offers saw 90 per cent of available generation capacity (around 2000 MW) priced below \$500/MWh between 5.30 pm and 8.30 pm. Late on Saturday afternoon, however, Hydro Tasmania rebid 965 MW of low-priced capacity into prices above \$9400/MWh for this period.

This resulted in around half of available generation in Tasmania priced below \$270/MWh and half priced above \$9000/MWh during the time of high prices. Dispatch of the high-priced capacity saw the 5-minute dispatch price increase from \$80/MWh at 5.45 pm to \$9995/MWh from 5.55 pm to 6.20 pm before falling to \$260/MWh at 6.25 pm. The spot price reached \$6750/MWh for the 6.30 pm trading interval.

Actual and forecast demand

Figure 1 compares the actual demand and spot price in Tasmania on 22 May 2010 with that forecast by AEMO 4 and 12 hours ahead of dispatch.

Figure 1: Actual and forecast demand and spot price

6.30 pm	Actual	4 hr forecast	12 hr forecast
Demand (MW)	1491	1505	1435
Spot Price (\$/MWh)	6750	53	51

Conditions at the time saw demand close to forecast. With temperatures at around 3 degrees in Hobart, demand reached a maximum of 1542 MW at 6 pm. This is the highest demand for

¹ This requirement is set out in clause 3.13.7 (d) of the National Electricity Rules.

a Saturday since 19 July 2008 (when demand reached 1578 MW)². The spot price was significantly higher than forecast.

Generator offers and rebidding

2020 MW of capacity was offered through initial offers (day ahead). 1814 MW (90 per cent) of this capacity was priced below \$500/MWh for the trading intervals ending 6 pm to 8.30 pm, and the remaining 206 MW was priced above \$9000/MWh.

At 4.50 pm, Hydro Tasmania rebid 965 MW of capacity across its portfolio from prices below \$270/MWh to above \$9400/MWh. The reason given was “1635A Tas demand > forecast, P5 Vic prices < Forecast SL”. At the same time Hydro Tasmania rebid the availability of all frequency control ancillary services at Cethana to zero. The same reason was given for this rebid.

There was no other significant rebidding.

Figure 2 shows the forecast and actual capacity priced below \$500/MWh and above \$9000/MWh, and the corresponding prices. There was no capacity offered between \$500/MWh and \$9000/MWh.

After Hydro Tasmania’s rebid at 4.50 pm, just over half of the available capacity in Tasmania was priced above \$9000/MWh. Following the rebid, this high-priced generation capacity was dispatched to meet demand. Accordingly, 5-minute prices increased from around \$80/MWh at 5.45 pm to above \$9995/MWh at 5.55 pm and remained there until 6.20 pm, after which the 5-minute price fell back to around \$260/MWh.

This reduction in price at 6.20 pm coincided with a significant increase in output from Hydro Tasmania’s non-scheduled generation. An increase in output from non-scheduled generation leads to a reduction in effective demand. This is detailed further in Appendix C. The AER has written about the impacts of non-scheduled generation on high price outcomes in Tasmania in previous reports.³

Figure 2: Actual capacity offered vs. forecast offers and prices at 6.30 pm

	Available Capacity (MW)		Price (\$/MWh)
	< \$500/MWh	> \$9000/MWh	
12 hr forecast	1958	206	51
4 hr forecast	1958	206	53
Actual	1033	1131	6750
Change between actual and 4 hr forecast	-925	925	6697

At all times during the high-price period the Hydro Tasmania generators set the price. This is detailed in **Appendix A**.

Hydro Tasmania was the only generator in Tasmania with capacity priced above \$5000/MWh. This is detailed in **Appendix B**.

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² Record demand in Tasmania of 1749 MW occurred on 10 July 2007.

³ \$5000 report covering the events of 10 to 19 June 2009 in Tasmania, weekly report for 16 to 22 May 2010.

Appendix A – Price setters for 22 May 2010

The following table identifies for the 6.30 pm trading interval each five minute dispatch interval price and the generating units involved in setting the energy price. This information is published by AEMO⁴. Also shown is the energy 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 average of the six dispatch interval prices.

Tasmania – 6.30 pm

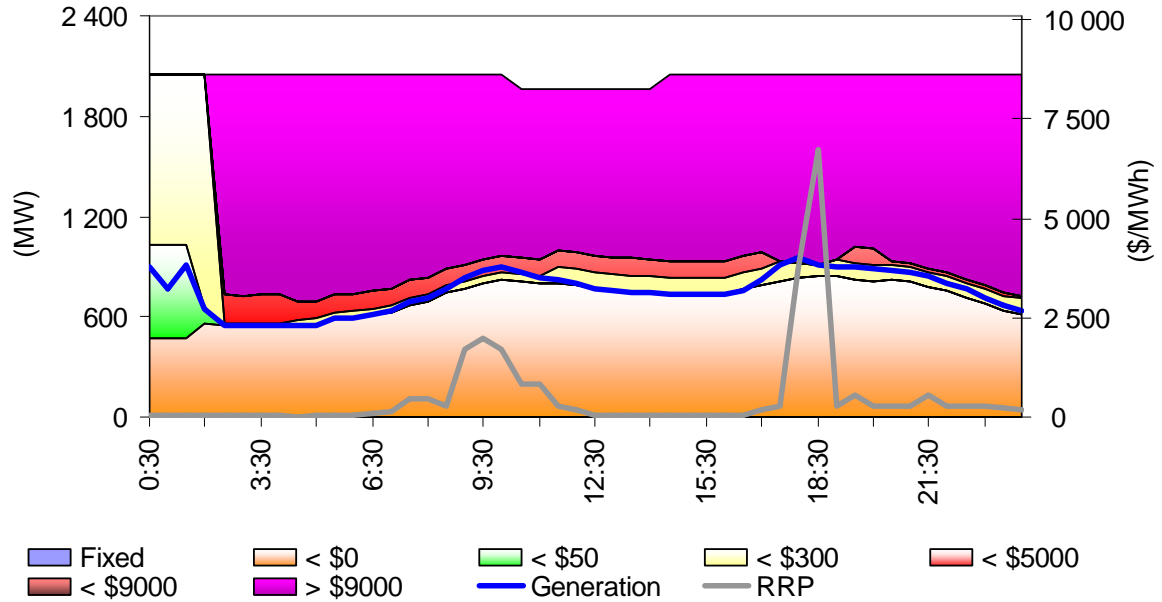
Time	Dispatch price	Participant	Unit	Service	Offer price	Marginal change	Contribution
18:05	\$9995.00	Hydro Tasmania	JBUTTERS	Energy	\$9995.00	1.00	\$9995.00
		Hydro Tasmania	JBUTTERS	Raise reg	\$1.50	-1.00	-\$1.50
		Hydro Tasmania	POAT110	Raise reg	\$1.50	1.00	\$1.50
18:10	\$9995.00	Hydro Tasmania	JBUTTERS	Energy	\$9995.00	1.00	\$9995.00
		Hydro Tasmania	JBUTTERS	Raise reg	\$1.50	-1.00	-\$1.50
		Hydro Tasmania	POAT110	Raise reg	\$1.50	1.00	\$1.50
18:15	\$9995.00	Hydro Tasmania	JBUTTERS	Energy	\$9995.00	1.00	\$9995.00
		Hydro Tasmania	JBUTTERS	Raise reg	\$1.50	-1.00	-\$1.50
		Hydro Tasmania	POAT220	Raise reg	\$1.50	1.00	\$1.50
18:20	\$9995.00	Hydro Tasmania	JBUTTERS	Energy	\$9995.00	1.00	\$9995.00
		Hydro Tasmania	JBUTTERS	Raise reg	\$1.50	-1.00	-\$1.50
		Hydro Tasmania	POAT110	Raise reg	\$1.50	1.00	\$1.50
18:25	\$260.00	Hydro Tasmania	JBUTTERS	Energy	\$260.00	1.00	\$260.00
18:30	\$260.00	Hydro Tasmania	JBUTTERS	Energy	\$260.00	1.00	\$260.00
Spot price		\$6750/MWh					

⁴ Details on how the price is determined can be found at www.aemo.com.au

Appendix B – Closing bids

Figure B1 highlights the half hour closing bids for Hydro Tasmania, the only participant in Tasmania with any capacity priced at or above \$5000/MWh during the 6.30 pm trading interval. It also shows the generation output of Hydro Tasmania and the spot price.

Figure B1: Hydro Tasmania closing bid prices, dispatch and spot price



Appendix C – Non-scheduled generation

The vast majority of installed generation in the National Electricity Market is registered as scheduled. Scheduled generators are dispatched by AEMO in accordance with their bids to meet demand. A number of smaller generators are classified as non-scheduled generation. Non-scheduled generators fall outside of the market processes and can produce electricity at their discretion. The output from non-scheduled generators is treated as negative demand, so any variation in their output is reflected in the demand that must be met by scheduled generators (for example, a 10 MW increase from a non-scheduled generator is treated as a 10 MW decrease in demand).

There is around 2400 MW of installed scheduled generation in Tasmania. There is a further 240 MW of non-scheduled generation. The non-scheduled generation includes:

- the 140 MW Woolnorth wind farm operated by Roaring 40s;
- the 28 MW Repulse hydro plant, operated by Hydro Tasmania;
- the 28 MW Paloona hydro plant, operated by Hydro Tasmania;
- the 17 MW Cluny hydro plant, operated by Hydro Tasmania;
- the 14 MW Butlers Gorge hydro plant, operated by Hydro Tasmania; and
- the 10 MW Rowallan hydro plant, operated by Hydro Tasmania.

The five non-scheduled generators operated by Hydro Tasmania are all hydro plant with a nominal capacity of less than 30 MW, and were registered as non-scheduled with AEMO⁵. During the trading interval, the combined output from Hydro Tasmania's three largest non-scheduled generators (Cluny, Paloona and Repulse) changed simultaneously from a combined output of 20 MW at 6.15 pm to around 60 MW from 6.20 pm to 6.45 pm. The combined output then simultaneously reduced from two out of the three non-scheduled generators (Cluny, Paloona and Repulse) to around 24 MW in total. As non-scheduled generating units are not scheduled as part of the central dispatch process, there is no requirement to notify the market of the availability or output level of these units. As a result the impacts of these significant changes in output were not forecast.

⁵ Note that there are a number of Hydro Tasmania's generators close to the 30 MW cut-off including the 32 MW Lake Echo plant, that are registered as scheduled generators.