

## Electricity Pricing Event Report – Wednesday 13 January 2016

**Market Outcomes:** Spot price in Victoria reached \$9,137.03/MWh for Trading Interval (TI) ending 1530 hrs, followed by spot prices of \$7,477.35/MWh in Victoria and \$5,173.04/MWh in South Australia for TI ending 1600 hrs.

FCAS prices in the mainland regions were higher than usual for TIs ending 1530 hrs to 1600 hrs, but did not reach the threshold value of \$150/MWh for reporting purposes.

Energy prices for other regions and FCAS prices in Tasmania were not affected.

Counter price flows caused negative residues of approximately \$4m to accumulate on the Victoria to New South Wales directional interconnector during the day. AEMO managed negative residues from 1515 hrs to 1620 hrs by reducing the flow on the interconnectors towards New South Wales. (Market notice 51317 and 51327)

Further information is provided below.

**Detailed Analysis:** The 5-Minute prices in Victoria were between \$8,536.43/MWh and the Market Price Cap (MPC) of \$13,800/MWh between dispatch intervals (DIs) ending 1515 hrs and 1550 hrs. The 5-Minute prices in South Australia reached \$10,860.00/MWh between DIs ending 1535 hrs and 1545 hrs. The high prices occurred during the evening peak demand period when flow from the northern regions were limited due to the reclassification of critical transmission lines in Victoria in response to lightning storms in the vicinity.

Temperatures in Melbourne reached a maximum of 43.6°C and the demand reached 9,448 MW for TI ending 1600 hrs (Demand peaked at 9,505 MW for TI ending 1700 hrs). Temperatures in Adelaide reached a maximum of 35.1°C and the demand reached 2,251 MW for TI ending 1600 hrs.

In response to lightning storms in the area, the loss of both Dederang-Glenrowan No.1 and No.3 220kV lines was declared a credible contingency from DIs ending 1515 hrs to 1550 hrs (Market Notices 51316 and 51323). The reclassification constraint set V-DDGN\_N-2 was invoked to manage the possible tripping of several transmission lines in Victoria. Constraint equation V>>DDSH\_DDGN\_N-2 within the set violated for the entire classification period. This constraint constrained down a large amount of generation from scheduled Victoria units and forced the VIC-NSW interconnector to flow towards New South Wales during the Victoria high priced periods.

Post-event investigation of the V>>DDSH\_DDGN\_N-2 constraint equation has verified that it is correctly designed. The constraint equation violated as the generation could not be scheduled in a way to relieve the violation and yet maintain the generation-demand balance in Victoria. Furthermore, Murray PS which is being constrained down changed its ramp rates from 30 MW/min to 3 MW/min effective of DI ending 1520 hrs with rebid reason of "VIC:ACT PRICE \$13,500.10 HGR THN 5MPD 15:15@15:06".

In Victoria, between DIs ending 1505 hrs and 1525 hrs, up to 25 MW from Valley Power Peaking Facility unit 3 bid unavailable with the reason "UPDATE AVAIL FOR CHANGE TO OUTAGE PLAN/PLANT CONDITIONS". Between DIs ending 1510 hrs and 1525 hrs, 130 MW from Yallourn W PS unit 1 bid unavailable with the reason "CAPACITY ADJ DUE TO MILL ISSUES".

In South Australia, for DI ending 1535 hrs, 90 MW of generation capacity from AGL was rebid from lower price bands to band priced at \$10,860.00/MWh. Northern PS unit 2 was shut down since DI ending 0020 hrs due to technical issues.

Cheaper priced generation was available but limited due to ramp rates (Hazelwood PS unit 5), FCAS profiles (Northern PS unit 1), required more than one DI to synchronise (Bairnsdale PS unit 1, Jeeralang "A" PS unit 1 and 4), or constrained off by thermal constraint equations V>>DDSH\_DDGN\_N-2 in Victoria and S>BRTW\_BWPA\_HUWT in South Australia.

Due to the counter-price flow on the VIC-NSW interconnector, the negative residue management (NRM) constraint equation NRM\_VIC1\_NSW1 was invoked between DIs ending 1520 hrs and 1620 hrs. The NRM constraint equation reduced the interconnector flow towards New South Wales but violated between DIs ending 1520 hrs and DI ending 1550 hrs.

For DIs ending 1555 hrs and 1600 hrs, the 5-minute prices in Victoria and South Australia collapsed to negative prices. This was due to a total of 915 MW in Victoria and 850 MW in South Australia rebid to the Market Floor Price (MFP) of -\$1,000/MWh as well as more generation was available when the constraint set V-DDGN\_N-2 was revoked and the constraint equation S>BRTW\_BWPA\_HUWT was no longer binding.

The 5-minute price in Victoria and South Australia increased to \$16.20/MWh and \$14.87/MWh respectively for DI ending 1605 hrs. The price increase is due to 2,654 MW of generation capacity in Victoria and 1,193 MW of generation capacity in South Australia rebid from negative priced bands to band priced at or above \$0/MWh.

The high 30-minute spot price for Victoria was not forecast in the latest pre-dispatch schedule, as it was a result of a reclassification of a non-credible contingency event. The high 30-minute spot price for Victoria and South Australia were forecast in the next pre-dispatch schedule.