

Electricity Pricing Event Report – Friday 20 January 2017

Market Outcomes: Spot price in Queensland (QLD) reached \$2,382.27/MWh and \$2,457.65/MWh for trading intervals (TIs) ending 1500 hrs and 1700 hrs, respectively, on 20 January 2017.

Energy prices in other regions were not affected by this event. FCAS prices in all regions were not affected by this event.

Detailed Analysis: The 5-Minute dispatch energy price in Queensland reached \$13,800/MWh for dispatch intervals (DIs) ending 1500 hrs and 1655 hrs. This high price can mainly be attributed to rebidding of generation capacity during periods of high demand while interconnector support was constrained.

For the high priced TIs, the demand in QLD was high reaching 8,777 MW and 9,173 MW for TI ending 1500 hrs and 1700 hrs, respectively. This high demand coincided with high temperatures in QLD, with a daily peak of 32.5 degrees (Archerfield Airport).

For DI ending 1455 hrs, Callide Power and InterGen rebid 116 MW of capacity from bands priced at the Market Floor Price (MFP) of -\$1,000/MWh to bands priced at \$13,999.99/MWh or the Market Price Cap (MPC) of \$14,000/MWh. For DI ending 1500 hrs, Gladstone PS unit 3 withdrew 10 MW from bands priced at \$98.66/MWh with the reason "1449P TECHNICAL ISSUES-ID FAN-SL".

Between DI ending 1455 hrs and 1500 hrs, demand in the region increased by 286 MW.

Between DI ending 1455 hrs and 1500 hrs, the sum of the flow on the interconnectors towards QLD increased by 32 MW to reach 235 MW. At DI ending 1500 hrs, the Queensland – New South Wales interconnector (QNI) was limited by the constraint equations $N^{Q_NIL_B1}$. The voltage stability constraint equation $N^{Q_NIL_B1}$ avoids the voltage collapse on the loss of Kogan Creek PS. Flow on the Terranora interconnector for DI ending 1500 hrs was 42 MW towards QLD, causing the export limit of 76 MW towards NSW set by the constraint equation $\#N-Q-MNSP1_I_E$ to violate. The constraint equation $\#N-Q-MNSP1_I_E$ is a quick constraint equation and was violating between DIs ending 1450 hrs and 1515 hrs.

For DI ending 1650 hrs, Callide Power and CS Energy rebid 100 MW of capacity from bands priced at \$98.66/MWh and below to bands priced at \$13,800/MWh and above.

Between DI ending 1650 hrs and 1655 hrs, demand in the region increased by 56 MW and the sum of the flow on the interconnectors towards QLD reduced by 3 MW to reach 168 MW. At DI ending 1655 hrs, QNI was limited by the constraint equations $N^{Q_NIL_B1}$. Flow on the Terranora interconnector was 87 MW towards NSW, forced by the outage thermal constraint equation $N>N-CHKK_TE_1$. The $N>N-CHKK_TE_1$ constraint equation avoids overload of the Armidale – Koolkhan No.966 132 kV line for the trip of the Coffs Harbour – Lismore No.89 330 kV line during the outage of the Coffs Harbour – Koolkhan No.96H 132 kV line.

Lower priced generation was available during the high priced DIs, but required more than one DI to synchronise (Braemar unit 5 & 7), was limited by FCAS trapezium profiles (Callide B unit 1), constrained off by the system normal constraint equation $Q>NIL_BI_FB$ (Gladstone PS unit 3 & 4), or was limited by ramp rates (Mt Stuart units 1 & 3). The $Q>NIL_BI_FB$ constraint equation avoids overloading the Boyne Island feeder bushing on Calliope River – Boyne Island 132 kV lines, for the loss of a single Calliope River – Boyne Island 132 kV line.

The 5-minute energy spot prices in QLD reduced to or below \$94.65/MWh in the DIs subsequent to the high priced intervals, when demand decreased and generation capacity was also shifted or rebid from higher price bands to lower price bands.

The high 30-minute spot prices for Queensland were not forecast in the latest pre-dispatch schedules as they were a result of rebidding.