

## Electricity Pricing Event Report - Saturday 11 February 2017

**Market Outcomes:** Spot prices in Queensland (QLD) ranged between \$2,232.51/MWh and \$8,568.90/MWh for all 5 Trading Intervals (TIs) between TI ending 1530 hrs and TI ending 1730 hrs.

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

Counter price flows caused negative settlement residues of approximately \$9,000,000 to accumulate on the Queensland to New South Wales directional Interconnector (QNI) between TIs ending 1330 hrs and 1730 hrs. AEMO managed negative settlement residues from 1205 hrs to 1250 hrs, and from 1320 hrs to 1815 hrs (Market Notices No. 57411, 57414, 57415 and 57433).

**Detailed Analysis:** The 5-minute energy prices in Queensland (QLD) ranged between \$6,666.66/MWh and \$13,387.00/MWh for 18 Dispatch Intervals (DIs) during the high priced TIs. These high prices can mainly be attributed to rebidding of generation capacity during a period of high demand, while interconnector support was constrained forcing flow into NSW.

Demand in QLD was high during the high priced TIs, reaching the daily peak of 8,751 MW for TI ending 1730 hrs. The high demand coincided with high temperatures in QLD, with a daily peak of 38.5 degrees (Archerfield Airport).

Flow on the Queensland – New South Wales Interconnector (QNI) ranged between 455 MW and 536 MW towards NSW during these high priced DIs, due to the outage thermal constraint equation  $N \gg Q\_LDMU\_B$ . This constraint equation avoids overload of the Liddell – Tamworth No.84 330 kV line for the loss of the largest QLD generator during the outage of the Liddell – Muswellbrook No.83 330 kV line. The Liddell – Muswellbrook No.83 330 kV line had an unplanned outage between 0725 hrs and 1736 hrs on 11 February 2017.

Flow on the Terranora interconnector ranged between 85 MW and 103 MW towards NSW during these high priced DIs, due to the constraint equations  $N \gg Q\_LDMU\_B$ ,  $\#N-Q-MNSP1\_I\_E$  and  $N > N-CHKK\_TE\_1$ . The  $\#N-Q-MNSP1\_I\_E$  quick constraint equation forces Terranora imports towards NSW to be at least 95 MW, and was applied to manage oscillations due to constraint action for the outage of the Coffs Harbour – Koolkhan No.96H 132 kV line (Market Notices No. 57430 and 57431). The  $N > N-CHKK\_TE\_1$  outage thermal 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. The Coffs Harbour – Koolkhan No.96H 132 kV line had a planned outage between 0705 hrs on 10 January 2017 and 0948 hrs on 8 April 2017.

For several high priced DIs, generation capacity of up to 55 MW was shifted or rebid by a number of generators, from bands priced at \$98.66/MWh and below to bands priced at \$12,400.03/MWh and above. For DI ending 1515 hrs, Darling Downs Power Station withdrew 20 MW of generation capacity from band priced at \$69.96/MWh with the reason “1505P CHANGE IN AVAIL - HIGH OIL TEMPS SL”. For both DIs ending 1605 hrs and 1620 hrs, Callide B withdrew 20 MW of generation capacity from band priced at \$16.80/MWh with the reasons “1555P CONDENSER VACUUM LIMITS-SL” and “1612P CONDENSER VACUUM LIMITS-SL”, respectively. Lower priced generation was available but was limited by its FCAS trapezium (Callide B unit 1) or was limited by ramp rates (Stanwell units 1, 3 & 4, Callide C unit 3 and Tarong units 1, 2, 3 & 4).

Due to the counter-priced flow on the QLD-NSW interconnector, the negative residue management (NRM) constraint equation  $NRM\_QLD1\_NSW1$  was activated from DI ending 1210 hrs. During the

high priced DIs, the NRM constraint equation violated for 17 DIs and did not reduce the interconnector flow towards NSW as it was constrained by outage constraints. The 5-minute prices reduced to \$299.05/MWh or below in the DIs subsequent to the high priced intervals, when demand in the QLD region decreased by up to 65 MW and generation capacity of up to 246 MW was rebid from bands priced at \$6,666.66/MWh and above to bands priced at \$299.05/MWh and below.

The high 30-minute spot prices for Queensland were forecast in the pre-dispatch schedules.