Electricity Pricing Event Report - Wednesday 1 February 2017

Market Outcomes: Spot prices in Queensland (QLD) were between $2,245.84/MWh and $2,350.60/MWh for trading intervals (TIs) ending 0100 hrs, 1200 hrs, 1630 hrs, 1730 hrs and 1830 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 $390,000 to accumulate on the Queensland to New South Wales directional interconnector for TI ending 0100 hrs and approximately $130,000 between TIs ending 1830 hrs and 1930 hrs. AEMO managed negative settlement residues from 0055 hrs to 0145 hrs, and from 1900 hrs to 2000 hrs (Market Notices No. 57152, 57153, 57173 and 57180).

Detailed Analysis: The 5-minute dispatch energy prices in Queensland were either $13,399.95/MWh or $13,450.03/MWh for dispatch intervals (DIs) ending 0035 hrs, 1200 hrs, 1630 hrs, 1725 hrs and 1815 hrs. The high prices can be attributed to shifting and rebidding of generation capacity during a period of high demand, while interconnector support was constrained.

Demand in QLD was high reaching a peak of 8,877 MW for TI ending 1630 hrs. This high demand coincided with high temperatures in QLD, with a daily peak of 33 degrees (Archerfield).

Planned outage of the Coffs Harbour – Koolkhan No.96H 132 kV line was scheduled between 0705 hrs on 10 January 2017 and 0948 hrs on 08 April 2017. The outage constraint set N-CHKK_96H was invoked for the duration of the outage.

For most high priced DIs, generation capacity of up to 662 MW was shifted or rebid by a number of generators from lower priced bands to bands priced above $13,899.99/MWh. Cheaper priced generation was available but were limited due to ramp rates, FCAS profiles or required more than one DI to synchronise. Lower price generation was also constrained off by the system normal constraint equations Q>NIL_BI_FB and Q>NIL_MRTA_A. The constraint equation Q>NIL_BI_FB 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 constraint equation Q>NIL_MRTA_A limits Oakey PS according to the rating of the Middle Ridge – Tangkam No.731 110 kV line.

During the high priced DIs, the target flow on the QNI interconnector towards QLD was limited between 177 MW and 258 MW by system normal constraint equations N^^Q_NIL_B1 or N>>N-NIL__3_OPENED. The N^^Q_NIL_B1 constraint equation avoids voltage collapse in NSW for the loss of Kogan Creek PS. The thermal constraint equation N>>N-NIL__3_OPENED avoids overload of the Liddell – Muswellbrook No.83 330 kV line for the trip of the parallel Liddell – Tamworth No.84 330 kV line.

For DI ending 0035 hrs, the target flow on the Terranora interconnector towards QLD was limited to 34 MW by the outage constraint equation N_X_MBTE2_A. This outage constraint manages the outage of two Directlink cables. Directlink DC1 was on an unplanned outage between 0325 hrs on 17 January 2017 and 1249 hrs on 15 February 2017. Directlink DC3 was on a planned outage scheduled between 0700 hrs on 23 January 2017 and 1354 hrs on 08 February 2017. For other high priced DIs, the target flow on the Terranora interconnector was towards NSW and limited between 69 MW and 83 MW by constraint equations N^^Q_NIL_B1, N>>N-NIL__3_OPENED, and N>N-CHKK_TE_1. The outage constraint equation N>N-CHKK_TE_1 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 5-minute energy spot prices in QLD reduced to $83.94/MWh or below in the DIs subsequent to the high priced intervals, when demand decreased and generation capacity was also rebid from higher priced bands to lower priced bands.

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