

Electricity Pricing Event Report – Wednesday 23 September 2015

Market Outcomes: Spot price in New South Wales reached \$13,419.89/MWh and \$6,717.38/MWh for Trading Intervals (TI) ending 1830 hrs and 1900 hrs respectively. Queensland Frequency Control Ancillary Service prices (sum of all services) reached \$13,246.16/MWh and \$6,620.91/MWh for the same trading intervals.

Counter price flows caused negative residues of approximately \$3.5m to accumulate on the New South Wales to Victoria directional interconnector between TIs ending 1800 hrs and 1900 hrs. AEMO managed negative residues from 1800 hrs to 2000 hrs (Market Notices No. 49864 and 49866).

Energy and FCAS prices in other regions were not affected.

Further details are provided below.

Detailed Analysis: 5-minute dispatch price in New South Wales was above \$13,404.83/MWh between DIs ending 1805 hrs and 1845 hrs. The Fast Lower service price in Queensland ranged between \$13,205.65/MWh and \$13,256.50/MWh during the same period. The high prices can be attributed to planned/short-notice outages of major transmission lines in New South Wales and Queensland.

New South Wales demand reached a peak of 10,176 MW for TI ending 1900 hrs. Queensland demand reached a peak of 6690 MW for the same interval.

Planned maintenance of Upper Tumut - Canberra No.1 330 kV line was scheduled between 0718 hrs on 22 September 2015 and 1504 hrs on 24 September 2015. Outage constraint set N-CNUT_01 was invoked from DI ending 0705 hrs on 22 September 2015 to manage the outage of the transmission line.

With the increasing evening demand in NSW, the N::V_CNUT_2 constraint equation within the N-CNUT_01 constraint set began to bind from DI ending 1735 hrs. This constraint equation prevents transient instability for faults on various locations within the Yass – South Morang area. The binding constraint equation constrained off a large amount of generation within NSW and forced the VIC-NSW Interconnector to flow towards Victoria during the high priced period. The target flow towards Victoria on the VIC-NSW interconnector increased from 96 MW for DI ending 1730 hrs to 890 MW for DI ending 1800 hrs.

The remaining cheaper generation in New South Wales was limited by ramp rates, FCAS profiles or fast-start profiles. Generation offers priced at or above \$13,404.83/MWh had to be cleared from Bayswater Units 1 to 4 or Mt Piper Units 1 and 2 to meet the demand for the high priced DIs.

Due to the counter-price flow on the VIC-NSW interconnector, the negative residue management (NRM) constraint equation NRM_NSW1_VIC1 was invoked from DI ending 1805 hrs. The NRM constraint equation reduced the interconnector flow towards Victoria from 512 MW to 0 MW between DIs ending 1805 hrs and 1850 hrs.

A short notice outage of the Armidale 330 kV Bus section 1 was scheduled between 1614 hrs and 1918 hrs on 23 September 2015. The bus outage required the Armidale – Dumaresq 8C 330 kV line to be taken out of service during that period. The outage of the 8C line introduced a risk of separation between Queensland and New South Wales. The local FCAS requirements in Queensland increased as a result to cover the loss of the remaining Armidale – Dumaresq 330 kV transmission line.

The target flow towards New South Wales across the QNI interconnector was limited to 350 MW between DIs ending 1805 and 1845 hrs by constraint equations F_Q++ARDM_L6 and F_Q++ARDM_L5. The constraint equations ensure sufficient Lower FCAS was available in Queensland in the event of a contingency. The Fast Lower service price in Queensland reached \$13,256.5/MWh for DI ending 1830 hrs with the high FCAS requirement in Queensland. The Terranora interconnector was operating at reduced capacity due to the outage of two Directlink cables. The target flow across the interconnector was limited to 97 MW between DIs ending 1805 and 1845 hrs by constraint equation N_X_MBTE2_B which manages flow to Terranora load during the outage of two Directlink cables.

The energy price in New South Wales reduced to \$43.79/MWh for DI ending 1850 hrs when demand reduced by 109 MW and 510 MW of generation capacity was rebid from higher priced bands to Market Floor Price (-\$1000/MWh). The Fast Lower service price in Queensland reduced to \$1.14/MWh for the same interval when the target flow towards New South Wales across QNI reduced to 236 MW.

The 1800 Pre-dispatch run predicted high spot prices in NSW and high FCAS price in Queensland for TIs ending 1830 and 1900 hrs.