Electricity Pricing Event Report – Monday 6 February 2017

Market Outcomes: Spot prices in Queensland (QLD) were between $2,532.09/MWh and $11,027.91/MWh for trading intervals (TIs) ending between 1530 hrs and 1700 hrs on 6 February 2017. For the same intervals, New South Wales (NSW) spot prices were between $2,741.78/MWh and $11,692.09/MWh. Mainland Raise Regulation Frequency Control Ancillary Service (FCAS) price was $478.54/MWh for TI ending 1600 hrs.

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

Actual Lack of Reserve Level 1 (LOR1) condition had been declared for the NSW region between 1330 hrs to 1730 hrs (Market Notice No. 57241).

Detailed Analysis: The 5-minute dispatch energy prices in QLD were either $10,337.38/MWh, $13,800/MWh or at the Market Price Cap (MPC) of $14,000/MWh for 11 dispatch intervals between dispatch intervals (DIs) ending 1510 hrs and 1700 hrs. For the same period, NSW prices were between $10,439.13/MWh and $13,899.95/MWh. The high prices can be attributed to tight supply demand situation during the heatwave period, while interconnector support was constrained.

Demand was high in both regions with QLD reaching a peak of 8,967 MW for TI ending 1800 hrs and NSW reaching a peak of 13,774 MW of TI ending 1600 hrs. This high demand coincided with a heatwave period in both regions. QLD had a daily peak temperature of 33.4 degrees (Archerfield Airport) whereas NSW had a daily peak of 34.3 degrees (Bankstown).

For DI ending 1655 hrs, CS Energy rebid 250 MW of generation capacity from band priced at $0/MWh to band priced at MPC with the reason "*1645P TECHNICAL ISSUES-STATOR WINDING TEMPS HIGH-SL*".

Cheaper priced generation was available in both regions but was limited due to ramp rates, FCAS profiles, required more than one DI to synchronise, or constrained by system normal constraint equations either N>>N-NIL__B_15M, N>>N-NIL__H_15M, N>>N-NIL_01N or N>>N-NIL_64. The thermal constraint equation N>>N-NIL__B_15M avoids overloading of the Upper Tumut – Canberra No. 1 line for the loss of the Lower Tumut – Canberra No. 7 line. The thermal constraint equation N>>N-NIL__H_15M avoids overloading of the Lower Tumut – Canberra No. 7 line for the loss of the Lower Tumut – Yass No. 3 line. The thermal constraint equation N>>N-NIL_01N avoids overloading of the Canberra – Yass No. 9 for the loss of the Kangaroo Valley – Dapto No. 18 line. The thermal constraint equation N>>N-NIL_64 avoids overloading of the Bannaby – Sydney West No. 39 line for the loss of the Dapto – Sydney South No. 11 line.

During the high priced intervals, the target flow on the VIC-NSW interconnector towards NSW was limited between 258 MW and 470 MW by the same set of system normal constraint equations, either N>>N-NIL__B_15M, N>>N-NIL__H_15M, N>>N-NIL_01N or N>>N-NIL_64.

The 5-minute energy spot prices in QLD and NSW reduced to $352.56/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 and NSW were forecast in the pre-dispatch schedules.

The 5-minute Raise Regulation FCAS price on the Mainland was approximately $1,320/MWh for DIs ending 1555 hrs and 1600 hrs. This was attributed to an increase in the raise regulation requirement on the Mainland, due to an increasing time error.

Between DI ending 1550 hrs and 1555 hrs, the Raise Regulation requirement on the Mainland increased by 23 MW due to an increasing time error. This requirement was managed by constraint equation F_MAIN+NIL_DYN_RREG. This constraint equation increases the Mainland Raise Regulation Requirement by 60 MW for each 1 sec of time error below -1.5 sec.

During the tight supply demand period, there was limited availability of cheaper priced Raise Regulation FCAS capacity across the Mainland. These units were dispatched close to their maximum capacity in the energy market, which effectively reduced their Raise FCAS availability.

The Mainland FCAS prices for Raise Regulation FCAS reduced to $300/MWh for DI ending 1605 hrs when the Raise Regulation requirement reduced by 21 MW.

The high Raise Regulation FCAS prices on the Mainland were not forecast in pre-dispatch schedules as the increased time error occurred within the trading interval.