Electricity Pricing Event Report – Thursday 14 January 2016

Market Outcomes: New South Wales spot prices were $642.20/MWh and $5,022.74/MWh for trading intervals (TIs) ending 1330 hrs and 1400 hrs respectively.

FCAS price in mainland NEM was $294.64/MWh for TI ending 1400 hrs.

FCAS prices in Tasmania and Energy prices for the other NEM regions were not affected by this event.

Actual Lack of Reserve Level 1 (LOR1) condition had been declared for the New South Wales region from 1100 hrs to 1430 hrs (Market notices 51358 and 51372). Actual LOR2 condition had been declared for the New South Wales region from 1330 hrs to 1430 hrs (Market notices 51362 and 51371).

Detailed Analysis: 5-Minute dispatch prices in New South Wales were between $935.85/MWh and $13,594.71/MWh for five dispatch intervals (DIs) between DIs ending 1305 hrs and 1345 hrs. The high price can be attributed to high demand and unplanned outage of a generator.

Temperatures in Sydney Airport reached a maximum of 41°C which contributed to the high demand of 12,844 MW for TI ending 1330 hrs in New South Wales.

At 1330 hrs, Liddell unit 3 tripped from 344 MW.

Cheaper priced generation was available but limited due to ramp rates (Eraring unit 2, Bayswater units 3 and 4), required more than one DI to synchronise (Colongra GT unit 1, 2 and 4), and majority of New South Wales generation being constrained down by the system normal constraint equations including N>>N-NIL__S and N>>N-NIL_64. The thermal constraint equation N>>N-NIL__S manages the post-contingent flow of the Mt Piper – Wallerawang no.70 330kV transmission line while constraint equation N>>N-NIL_64 manages the post-contingent flow of the Bannaby – Sydney West no.39 330kV transmission line.

During the high priced intervals, the target flow on the VIC-NSW interconnector towards New South Wales was limited up to 257 MW by system normal constraint equations, N>>N-NIL__S, N^^N_NIL_1 and N>>N-NIL__B_15M. The constraint equation N^^N_NIL_1 manages the voltage stability limit in the Upper Tumut – Canberra – Yass area. The constraint equation N>>N-NIL__B_15M manages the post-contingent flow of the Upper Tumut – Canberra no. 1 330 kV transmission line.

During the high priced intervals, the target flow on the QNI interconnector towards New South Wales was limited up to 607 MW by system normal constraint equations, N>>N-NIL_64 and N>>N-NIL__S.

During the high priced intervals, the target flow on the Terranora interconnector towards New South Wales was limited up to 89 MW by the system normal constraint equation N>>N-NIL_64 and the outage constraint equation N_X_MBTE2_B. The constraint equation N_X_MBTE2_B manages flow to Terranora load during the outage of two Directlink cables.

New South Wales dispatch price reduced to $473.31/MWh for DI ending 1350 hrs with the decrease in demand. By DI 1355 hrs the New South Wales price reduced to $27.62/MWh when approximately 94% of New South Wales generation was offered in the negative priced bands.

The high energy price in New South Wales was forecast in pre-dispatch schedules.

Raise Regulation service price for each of the mainland NEM regions reached $300/MWh for five dispatch intervals within TI ending 1400 hrs. FCAS support from Tasmania was unavailable due to the outage of the Basslink interconnector from 20 December 2015. As the NEM demand increased in the afternoon and the unplanned outage of Liddell unit 3, the accumulated time error in the mainland increased from -1.49 seconds at 1242 hrs to -4.47 seconds at 1338 hrs. Consequently, the Raise Requirement requirements have increased to manage the time error. Between DI ending 1345 hrs and 1400 hrs, constraint set F-MAIN_RREG_0300 was invoked to manage raise regulation requirements (Market notice 51367). The additional raise regulation had to be sourced from more expensive units when a number of generators were limited by their FCAS profiles.

The mainland FCAS prices for Raise Regulation services reduced to $25.40/MWh for DI ending 1405 hrs when the time error in the mainland had recovered and raise service requirements reduced.

The high 30-minute FCAS prices for mainland were not forecast in the pre-dispatch schedules, as the FCAS requirements in Pre-dispatch were much lesser than Dispatch.