Electricity Pricing Event Report – Wednesday 14 December 2016 to Thursday 15 December 2016

Market Outcomes: South Australia Raise Regulation Frequency Control Ancillary Service (FCAS) prices ranged between $300.02/MWh and $545.69/MWh for 11 trading intervals (TIs) between TIs ending 0630 hrs on 14 December 2016 and 0000 hrs on 15 December 2016. South Australian Lower Regulation FCAS prices ranged between $300.06/MWh and $370.61/MWh for 43 TIs between TIs ending 1100 hrs on 14 December 2016 and 1400 hrs on 15 December 2016.

FCAS prices in the other regions and energy prices in all regions were not affected by this event.

Actual Lack of Reserve Level 2 (LOR2) conditions had been declared for the South Australia region between 0600 hrs on 14 December 2016 and 1407 hrs on 15 December 2016 during the planned outage of the Heywood No.1 500 kV Bus (MN 56267, 56278). During these LOR2 periods, there were sufficient capacity reserves in the South Australia region to meet electricity demand. However in the event of a credible contingency, whereby South Australia separated from the rest of the NEM, power interruptions would have been likely due to automatic under-frequency load shedding as a result of ramp rate limitations associated with dispatching additional generation in a short timeframe.

Detailed Analysis: The 5-minute Raise Regulation FCAS prices ranged between $300.09/MWh and $1,038.15/MWh for 26 DIs within the high priced TIs. The 5-minute Lower Regulation FCAS prices ranged between $300.44/MWh and $370.86/MWh for 230 DIs within the high priced TIs. These high prices were mainly attributed to increased Regulation FCAS requirements within South Australia during a planned outage of Heywood No.1 500 kV Bus and limited availability of lower priced Regulation FCAS capacity in South Australia.

The Heywood No.1 500 kV Bus was on a planned outage from 0609 hrs on 14 December 2016 to 1408 hrs on 15 December 2016. This outage increased the risk of electrical separation between South Australia and Victoria. The outage constraint sets F-I-HYSE, S-X_BC_CP, V-HYTX_M12 and V-HY_500BUS were invoked for the duration of the outage. The constraint equations F-S_LREG_0035 and F-S_RREG_0035 contained within the F-I-HYSE constraint set required 35 MW of Lower and Raise Regulation FCAS capacity to be sourced from within South Australia.

Regulation FCAS in South Australia during the outage period was provided by Torrens Island B PS, Quarantine PS and Pelican Point PS.

Between DIs ending 0600 hrs and 0605 hrs, the price of Raise and Lower Regulation FCAS increased from $7.4/MWh and $9/MWh to $520/MWh and $299.99/MWh, respectively, when the local Regulation FCAS requirement was invoked. Raise Regulation prices remained between $299.99/MWh and $540/MWh for most DIs between DI ending 0605 hrs on 14 December 2016 and 1425 hrs on 15 December 2016. For DIs ending 2335 hrs and 2340 hrs on 14 December 2016, the price reached $1,038.15/MWh and $1,036.00/MWh, respectively, as a result of reduced availability of lower priced Raise Regulation FCAS.

During the high priced DIs there was limited availability of lower priced Regulation FCAS. Between DI ending 0605 hrs on 14 December 2016 and 1425 hrs on 15 December 2016 Lower Regulation FCAS prices ranged between $299.99/MWh and $370.86/MWh.

At DI ending 1430 hrs, the Raise and Lower Regulation FCAS price reduced to $7.4/MWh and $4.99/MWh, respectively, when the outage constraint set F-I-HYSE was revoked following the completion of the planned outages.

The high Regulation FCAS prices were forecast in all pre-dispatch schedules from 1300 hrs on 13 December 2016.