

Electricity Pricing Event Report – Friday 23 December 2016

Market Outcomes: South Australian Raise and Lower Regulation FCAS prices ranged between \$808.98/MWh and \$5,680.42/MWh for four trading intervals (TIs) between TIs ending 0730 hrs and 1200 hrs.

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) condition had been declared for the South Australia region between 0715 hrs and 1330 hrs on 23 December 2016 (Market Notice 56405 and 56410). 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 Victoria, power interruptions would have been likely, due to automatic under-frequency load shedding. This would have been triggered 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 in South Australia ranged between \$11,110.71/MWh and \$11,300.00/MWh for 13 dispatch intervals (DIs) between DIs ending 0710 hrs and 1150 hrs. During DIs ending 0720 hrs, 0955 hrs and between DIs ending 1140 hrs and 1150 hrs, the 5-minute Lower Regulation FCAS prices ranged between \$10,271.84/MWh and \$11,342.33/MWh. These high prices coincided with increased Regulation FCAS requirements in South Australia during the short notice outage of the Moorabool – Mortlake PS 500 kV line and reduction in cheaper priced Regulation FCAS availability.

The Moorabool – Mortlake PS 500 kV line was on a short notice outage from 0704 hrs to 1330 hrs on 23 December 2016. This outage increased the risk of electrical separation between South Australia and Victoria. The outage constraint sets F-V-MLMO, S-X_BC_CP and V-MLMO were invoked for the duration of the outage. The constraint equations F-S_LREG_0035 and F-S_RREG_0035 contained within the F-V-MLMO 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.

During DIs ending 0720 hrs, 0955 hrs and between DIs ending 1140 hrs and 1150 hrs the Raise and Lower Regulation FCAS availability of the Torrens Island B unit 4 reduced, resulting in a reduction in the Regulation FCAS dispatched from this unit. This reduction in Regulation FCAS availability was a result of a decrease in the unit's dispatch in the energy market when the demand in SA is fairly low.

The Lower and Raise Regulation FCAS prices reduced to \$6/MWh or below, for DI ending 1345 hrs when the outage constraint set F-V-MLMO was revoked following completion of the Moorabool – Mortlake PS 500 kV line outage and there was no longer a local Regulation FCAS requirement for SA.

The high Regulation FCAS prices were forecast in all pre-dispatch schedules from 1430 hrs on 22 December 2016, after relevant constraint sets for the short notice outage were invoked in pre-dispatch.