Electricity Pricing Event Report – Tuesday 05 April 2016

Market Outcomes: South Australia spot price was between -$182.88/MWh and -$203.61/MWh for trading intervals (TI) ending 0300 hrs, 0330 hrs and 0400 hrs.

Victorian spot price was negative for all affected TIs, but did not reach the price threshold for reporting purposes. South Australia FCAS prices and energy and FCAS prices in other regions were not affected.

Detailed Analysis: 5-Minute dispatch price in South Australia decreased to at or below -$977.98/MWh for dispatch intervals (DI) ending 0250 hrs, 0310 hrs and 0345 hrs. These negative prices can be mainly attributed to the South Morang F2 500/330kV transformer flow change, resulting in increased interconnector flows from Victoria to South Australia and decreased interconnector flows from Victoria to New South Wales, during low demand periods.

For all affected TIs, South Australia had low operational demand, between 1134 MW and 1207 MW. For the negative priced DIs, demand decreased by up to 79 MW when up to 69 MW of non-scheduled generation came online. For DIs ending 0310 hrs and 0345 hrs, wind generation in South Australia increased by 63 MW and 182 MW, respectively.

For the negative priced DIs, flow across the South Morang F2 500/330kV transformer decreased by up to 131.78 MVA. The decreased loading on the transformer caused the right-hand side of the thermal constraint equation V>>V_NIL_2A_R to decrease. This constraint equation prevents the overload of South Morang F2 500/330 kV transformer under system normal conditions. To prevent this constraint equation from violating, the target flow towards New South Wales on the VIC-NSW interconnector was decreased by up to 213 MW, the target flow towards South Australia on the Heywood interconnector was increased by up to 126 MW and the target flow towards Victoria on the Murraylink interconnector was decreased by up to 29 MW.

Planned outage of the Canowie – Robertson 275 kV line was scheduled between 0748 hrs on 2 April 2016 and 1838 on 5 April 2016. Planned outage of the Davenport – Canowie 275kV line was scheduled between 0742 hrs on 29 March 2016 and 1907 hrs on 5 April 2016. The constraint sets S-CNHL_HAL and S-X_DVCN+CNRB+RBCB were invoked for the duration of the concurrent outages.

During the negative priced DIs, the thermal outage constraint equations S>>X_DVCN+CNRB+CB_10 and S>>X_DVCN+CNRB+CB_16 from the S-X_DVCN+CNRB+RBCB constraint set limited the flow on the Murraylink interconnector from South Australia to Victoria. The S>>X_DVCN+CNRB+CB_10 constraint equation prevents the overload of the Robertstown 275/132kV transformer for loss of Robertstown – Para 275kV line, during the outage of the Davenport–Canowie – Robertstown 275kV line. The S>>X_DVCN+CNRB+CB_16 constraint equation prevents the overload of the Waterloo East–Morgan Whyalla Pump 4 – Robertstown 132kV line for loss of the Mokota – Robertstown 275kV line during outage of the Davenport – Canowi–Robertstown 275kV line.

With excess cheaper priced generation available from Victoria during the low demand period, the South Australia price decreased to below -$997.98/MWh for all affected DIs.

The 5-minute price in South Australia increased to at or above -$45/MWh for the DIs subsequent to the low priced DIs when demand increased by up to 121 MW and net interconnector flows towards South Australia reduced.

Negative spot prices were forecast in the latest pre-dispatch schedule, however the forecasted values were of a smaller magnitude than the dispatch price, due to dips in demand and changes in interconnector flows within the affected dispatch interval.