IEC 61850-Based Advanced Bus Transfer Scheme for Industrial Substations

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In industrial power systems, supply power reliability is crucial to maintain process operations and ensure personnel safety. A Main-Tie-Main (MTM) residual bus transfer scheme effectively minimizes power system outages by quickly disconnecting a faulted source of power and transferring load to an available source, with minimal interruption during the transfer sequence. In industrial facilities such as refineries many processes are supplied via motors. A variety of motors may be used: synchronous or induction, large or small. A transfer of supply power must be executed to avoid mechanical damage to motors and driven equipment. Utilizing traditional protection relays, the most efficient way to apply a MTM scheme is to use IEC 61850 GOOSE (Generic Object Oriented System Event) messaging for the inter-relay communications and control signaling. This technical paper discusses the advantages of a residual MTM automatic bus transfer scheme using IEC 61850 GOOSE messaging.