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BUSBAR PROTECTION - STANDBY NUMERIC PROTECTION SYSTEM AS AN ALTERNATIVE TO UKBP/TP162 CONTINGENCY OPTIONS

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PURPOSE AND SCOPE

PS(T)010 states that when a Numeric Busbar Protection is out of service for unacceptable period of time a contingency plan shall be applied.

UKBP/TP162 details how to implement the above policy.

This report is assessing the risks of adopting a Numeric Protection System standby option as an alternative to other contingencies detailed into UKBP/TP162.

PART 1 – REPORT DETAILS

1 APPLICATION AND OTHER CONSTRAINT ISSUES

- 1.1** There is only one set of CTs on each circuit connected to the Bay Units of the existing Numeric busbar protection system. The Standby Protection system will have to be "stitched" into the existing CT circuits, i.e. will have to be connected in series with the existing CTs.
- 1.2** If the dedicated busbar protection trip relays are to be used to enable opening of the CBs on each circuit connected to a faulty zone, some sharing of the trip circuitry will be needed.
- 1.3** To implement 1.1 and 1.2 around 5 days outage on each circuit will be needed for engineering to take place. For a site like St Johns Wood, for example, with 11 circuits, 2 bus couplers and 2 bus sections, 15 outage weeks will be needed. These outage requirements could prove to be an obstacle on implementation.
- 1.4** 1.1 and 1.2 introduce a risk. Clauses 3.24, 3.28 and 3.32 of TS 3.24.34 – Busbar Protection, require cables, wiring and terminals of the busbar protection to be segregated from other circuits. In addition, they do not allow for auxiliary switch contacts or relay contacts in the current transformer circuits. These, and other requirements have been put in place such that both safety and reliability are achieved. Standby System will not comply with the above requirements. With the standby option there would be sharing of CT and trip circuitry between installed busbar protection and the standby protection. It should be noted that there would be compliance against TS 3.24.34 for the installed, Type Registered, busbar protection. However, with the shared circuitry, installed busbar protection would no longer be compliant to TS 3.24.34, hence, with the standby protection option, the installed busbar protection Type Registration would be invalidated.