

Analysis of Open-Phase Conductor Events

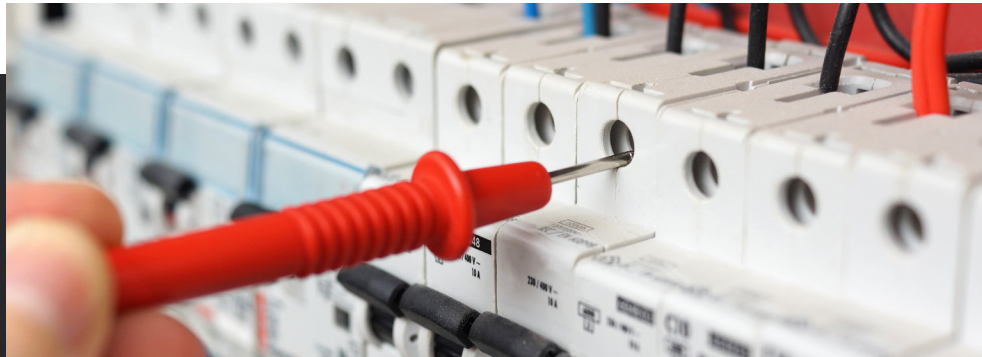
First of a kind technology to eliminate open-phase issues



01
THE CHALLENGE

Open-phase conductor events cause a loss of offsite power

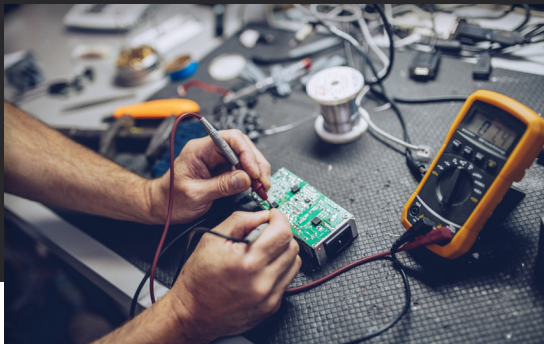
Two open-phase conductor events resulting in a loss of offsite power; protective relaying schemes are not designed to detect open-phase conditions.



02
THE SOLUTION

Evaluate the issue; eliminate design vulnerability

MPR identified an analysis methodology using first principles transformer models and plant system models; developed generic open phase detection logic. Asked to assist the manufacturer in the final development of technology to eliminate risk. Completed R&D of generic detection logic for open phase detection system. To evaluate options, MPR developed detailed transformer models of various transformer winding configurations and core constructions. Validated models with field tests of open phase conditions. Ultimately, MPR developed a logic scheme to be used as a generic detection scheme.



03
THE RESULTS

First of a kind technology solves industry-wide problem

MPR teamed with our customer and its vendor to thoroughly review the development of first of a kind technology to eliminate open phase issues and continue to be involved solving an industry wide problem.