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Neutral earthing configurations in the balance: Is there a universal panacea?

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Unfortunately, no single neutral earthing configuration is a panacea for all the ills to which a network is susceptible. Depending upon system topology and location a system faces many conflicting challenges, including: capital and operational costs, maintaining reliability, electric shock safety, bushfire ignition, fault location, insulation coordination, operational flexibility, equipment stress or damage, harmonic source management, protection discrimination, and cogeneration compatibility.

Australia has traditionally run MV power networks with the supply solidly earthed or earthed via an impedance. The introduction of compensated or resonant earthing offers a system operator a number of benefits in terms of reliability and earthfault energy reduction, yet these benefits do not come without a number of negative implications. This presentation will provide a comparative assessment of a number of neutral earthing schemes with a view to identifying the strengths and weaknesses of each system.