

Protection of distribution networks with distributed generation

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Relays applied to the protection of distribution networks assume the fault current flows from the grid supply point to the down stream low voltage network. This encourages the use of time delayed overcurrent relays with settings designed to ensure adequate discrimination between upstream and downstream relays.

If generation is connected to a distribution feeder, the main relaying challenge is related to the protection of the intertie between the distributed generator and the utility network. This must be adequately protected for all possible network and generator operating scenarios and all realistic fault conditions.

Biography:

The research and design activities associated with my industrial and academic career were/are related to the control of electrical power systems, impact of distributed/intermittent generators on electrical networks and the design and use of renewable energy systems and smart-grids. Generally, this required the formulation of new monitoring and analysis techniques, their implementation on simulators and computer systems, and the transfer of technology & IPR to industry.

After graduating in 1983, with a BSc degree in Electrical Engineering from UMIST and a PhD degree from the University of Cambridge, I joined GEC, where I was initially a Project Engineer and later a Senior Technical Engineer and Research Manager. In 1991, I joined UMIST as a lecturer and was then promoted to Senior Lecturer and Reader. In 2002, I joined Queen's University as Professor of Electrical Engineering and Director of Power & Energy Research. Finally, in 2006 I returned to the University of Manchester as Professor of Power Systems and later Director of the Joule Centre and Head of Electrical Energy Research. The aims of the Joule Centre are to: stimulate interdisciplinary research and development in the energy sector; and to increase the R&D capacity of NW England in the disciplines and

skills required for a sustainable energy future.