

## ACTIVE POWER FLOW MANAGEMENT TO FACILITATE INCREASED CONNECTION OF RENEWABLE AND DISTRIBUTED GENERATION TO RURAL DISTRIBUTION NETWORKS

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### ABSTRACT

Renewable energy resources are often located in remote areas serviced by low capacity radial distribution networks. Access to renewable energy resources is key to achieving UK and international emissions reduction targets from the electricity supply sector in developed countries. If renewable energy is to fulfil its full potential then more 'active' network control schemes utilising a combination of new network technologies and advanced modes of system planning and operation are required. Such schemes will provide connection and operation solutions that are economically preferable to network reinforcement, the traditional (and capital intensive) solution to the connection and operation of distributed generation (DG). This paper presents the main elements of an active management scheme developed by the authors to enable increased DG connections. The scheme has been designated a 'Registered Power Zone' by the UK regulator Ofgem. An online closed-loop trial is underway and full implementation is planned for 2007.