Project Title:	'Data Gathering within 11kV Network Employing Power Line Communications System for Active Distribution Network Operation'
Principle Investigator:	Dr H Li (University of Manchester)
Project duration:	01/03/09 – 30/11/09
Grant Value:	£74,995

In order for the UK to meet its ambitious targets for energy production from renewable sources (10% of electricity by 2010, 15% by 2020) it needs to expand its capacity to generate all forms of renewable energy. The proliferation of renewable energy generators, both on a large and small scale, will increasingly result in power flow which is bidirectional with individuals acting as both consumers and suppliers of energy. This presents a new challenge for the companies that operate the electricity networks in the UK (Distribution Network Operator's (DNO)) of integrating these, geographically diverse, generation sites into the existing power network. It will also mean the DNO's will have to manage the grid carefully and to do this they need to be able to gather accurate localized data from it.

This project is focused on developing a prototype Power Line Communication (PLC) system from off-the-shelf PLC products to gather data from an 11kV network, this is the type of network used to deliver electricity to consumers in the UK. Electricity North West (ENW), who operate the electricity distribution network in the North West, are collaborating on this project and have agreed to allow the PLC system to be tested on an operational part of the network. The prototype systems' performance will then be monitored and analysed in order to refine and improve it, this stage is expected to involve repeated testing and iterative improvements in the software design. The data generated from the trials will then allow for both an operational and economic analysis of the PLC system to be carried out.

This work will be of significant interest to the UK Government and Industry Regulator, as the new regulatory framework encourages development of active distribution networks and the introduction of innovation in distribution networks. The direct beneficiaries of this project will be Electricity North West (ENW) and other UK DNOs. The North West will also potentially realise important socio-economic benefits from an acceleration in deployment of renewable energy sources. As a result of ENW and other DNOs becoming capable of effectively and economically integrating such applications across their power distribution grids. Other beneficiaries would be North West based technology developers and suppliers of distribution automation and communications systems that could potentially employ PLC technology to offer new solutions for deployment within the power distribution environment.