

# SMART METERS AND SMART ENERGY NETWORKS FOR DWELLINGS

Mike Perry

Great Britain is making a strong commitment to smart meters and the role of smart meters as a focal point for smart energy management in homes. This Information Paper outlines the options available for automatic meter reading, monitoring and management and the challenges in implementing these technologies.

Several national initiatives are running in parallel with the smart meter programme. Coordinating these programmes will maximise the return on the substantial investment for each programme. The Paper aims to inform building and energy professionals and building owners about the exciting opportunities available through implementing smart meter technology.

## INTRODUCTION

The built environment is a major consumer of primary energy and source of carbon emissions. About 50% of primary energy is used in the built environment, including, for example, heating, ventilating, air conditioning, lighting and powering devices such as washing machines, fridges and TVs<sup>[1]</sup>. The largest consumer of energy is transport, accounting for about 37% of primary energy consumption. Energy consumption by domestic dwellings is 27–29%, making this sector the largest energy consumer among the building stock. Energy consumption by the industrial sector is about 21% – see Figure 1.

Urgent steps are needed to tackle the emerging energy and carbon emissions crisis, globally and nationally. Policy objectives have been set for the UK to reduce carbon emissions by at least 80% by 2050<sup>[2]</sup>, and to identify methods of energy production that reduce or eliminate our dependency on fossil fuels, for example, by ‘decarbonising’ the electricity supply, that is, minimising the carbon emissions associated with energy production.



A typical in-home display

A major increase in the use of renewable energy technologies is beginning – the UK has an obligatory target to increase its installed renewable energy load from about 1.5% now to 15% by 2020<sup>[3]</sup>. There is likely to be a major programme to build more nuclear power stations, and the search continues for innovative and effective methods of energy production, eg fuel cells.

Other benefits of tackling energy and carbon emissions include:

- increasing our security of energy supply
- introducing innovative energy technologies will help create new energy industries, new economic opportunities and jobs.

The introduction of new energy generation, centralised or local, will take place over the mid to long term. However, some issues, particularly the need to reduce