

CONSTRUCTION ENGINEERING MASTERS DISSERTATION ABSTRACT

The effectiveness of Smart metering and feedback systems at encouraging occupants to reduce energy consumption

The exponential increase in electricity consumption across the UK and its unchecked use has brought the UK on the verge of a power crisis. This situation has been compounded by the decommissioning of our current power capacity. There has been a strong push to combat this using renewable energy and smart electric grid deployment. The national install of smart meters is seen as an important shift from standard 'passive' electricity grids to 'smart grids'.

Smart Grids use digital technology to effectively manage electricity demand and production. As a response to Article 13 of EU energy directive, the Government has backed a mandate to replace old gas / electricity meters for domestic and small businesses by 2020. It is believed that smart meters combined with a display device will help consumers become more aware of how much energy is being used and take steps to reduce consumption.

This national rollout provides a huge logistical and technological challenge for the energy industry which will involve millions of homes and small businesses. Implementation has been estimated by energy regulator Ofgem to be approximately £12bn. A cost which sceptics would argue would be eventually passed onto consumers via higher energy prices.

The literature shows a number of trials which have had some success in reducing consumption and supporting load distribution within the network. Equally there have been questions raised regarding the implementation and overall long term effectiveness of the technology.

This investigation sets out to identify whether smart meters actually solves some of the inherent problems associated with gas and electricity metering. It will also help to determine the role of smart meters and feedback systems in understanding consumer energy usage and resolving issues in energy demand management.

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