'Smart metering' – energy policy's missing link?

Sharply higher energy prices seem to be giving added momentum – some would say "at last" – to "smart metering". Consumers would use their energy more prudently if they understood the implications of their actions, the argument goes, and metering equipment is already in the marketplace that is capable of providing them with better information on which to make better consumption decisions.   So why is advanced metering struggling to establish itself, especially in the mass market?

The time has come?

As a concept smart metering has been on the agenda for some time. As the Box below suggests, it can mean different things to different people. Indeed, nearly half of British electricity demand is already smart metered in some way, with mandatory half hourly metering already required of most larger business customers. This situation was initially introduced as an obligation on first time switchers to make industry settlement work, and then latterly expanded to all over 100kW sites.

But while bringing smart metering to smaller users may be desirable, it is not a settlement imperative, and as a consequence actual progress has been modest.

A DTI workgroup considered the issues in 2001 and producing a report in the autumn of that year, for example. It cited a number of benefits from smart metering including:

- bill reductions of 5-10pc or more;

- lower consumption and thus carbon emissions;

- lowering peak electricity demands;

- enhanced security of supply by reducing pressure on the network; and

- increased use of new small-scale generation technology (such as photovoltaics and micro-CHP) with the associated environmental and social benefits they are expected to bring.

In the group's view, smart metering "thereby promot[es] Government objectives for a sustainable energy policy–in particular those relating to environmental and security of supply issues." Few if any technology routes would seem to offer so many benefits across the suite of government policy objectives. And in some countries, such as Italy which is heavily energy constrained, governments have adopted mandatory programmes for widespread roll out of smart metering to capture these benefits.

What is 'Smart metering'?

'Smart metering' is used to describe a broad range of metering and data technologies. Elexon's recent paper includes the following comments which form a useful summary definition of smart metering technologies:

• Automatic Meter Reading (AMR) - One way communication where the meters can be read remotely, through a communications system, without the costs and practical difficulties of conventional meter reading. The frequency of reads can be based on the needs of the Supplier or Customer. Communication platforms include telephone line, mobile phone, internet, radio, power line carrier (PLC) as well as the short messaging service (SMS) or text messaging;

• Automatic Meter Management (AMM) - Two-way communication where, in addition to AMR, the meters can typically: monitor and detect fraud; enable remote disconnection or load limiting; facilitate remote tariff changes; and display costs, energy used, energy efficiency and real time tariff information;

• Interval Metering with AMM (IM) - In addition to AMM, the meters can record and store more detailed usage information. Electricity consumption is captured in frequent increments, such as quarter or half hourly intervals. This data can be stored in the meter and retrieved remotely as required (e.g. daily or monthly).

Little substantive action has followed this report in the UK, despite the costs of the units becoming progressively cheaper as shown in the box below, though a couple of larger suppliers have initiated pilot schemes in conjunction with equipment manufacturers.

But there are signs this may be about to change. Two examples of current initiatives are from energywatch - which last month pushed the concept with a report and follow-up seminar–and Elexon which is now considering establishing an Expert Group to address settlement aspects of greater meter use.

Energywatch's report - *Get Smart: Bringing Meters in to the 21st Century* – argues for "government, Ofgem and the industry to deliver a pathway that might lead to the widespread adoption of smarter meters and smarter energy consumers." Specifically it is seeking a requirement that all new and replacement meters be capable of showing time-based consumption and costs and of being read remotely. It believes that so doing will deliver significant benefits, including:

- meeting 6% of the Energy Efficiency Commitment target faced by suppliers if a commitment were adopted to install smart meters on a new and replacement basis;

- providing annual savings of £15 per electricity bill and £20 per gas bill for domestic consumers;

- facilitating achievement of fuel poverty targets by encouraging more efficient use and administration of the Fuel Direct scheme; and

- improving security of supply, particularly at peak times through encouraging greater prudence in energy use.

In order for smart metering to meet its potential, energywatch is looking for several factors to be addressed. It believes the combination of RPI-X regulation on network operators and tight supply margins has exacerbated the trend to install low-cost meters with basic functionality. Furthermore, in its opinion, the 28 day rule on switching and competition in metering services has mitigated against suppliers and meter asset owners being prepared to make investments that might be at risk from either change of supplier or meter operator.

New aspect: social policy

It is the social policy aspect which is genuinely new in energywatch's initiative. Given the noticeable increase in fuel poverty household numbers of recent, this gives 'smart metering' an urgency that it simply did not seem to have before. And with fuel poverty numbers now causing the government a headache, the time is right for greater policy focus on the possibilities afforded by smart metering.

Reflecting this concern and current increased interest this Thursday (13 October), Ofgem launched its Social Action Strategy with a seminar aimed at sharpening focus on measures to reduce fuel poverty. In so doing it called for "continuing innovative approaches to target help at the hardest to reach fuel poor customers" noting that fuel poverty affects two million British households at the moment. Chairman, Sir John Mogg, said "A year ago, I called for a more joined-up approach to tackle fuel poverty. I am pleased to note most companies have responded… and followed Ofgem guidance by bringing in a number of social tariffs." It seems only a matter of time before the question of regulatory incentives is explored more widely. A consultation on the issues and possible barriers to take-up is rumoured to be in the Ofgem pipeline.

It is undisputable that smart metering can deliver wide-ranging benefits on top of this. It would seem to us to be sensible for Ofgem to use the influence it is keen to demonstrate that it has on suppliers to lead market development in a direction that should stimulate innovative offerings and greater efficiency. It also needs to determine how it deals with relaxation of the 28 day rule for switching on an enduring basis so that energy suppliers and equipment manufacturers understand the rules.

As for government it needs to consider the role of metering within its energy efficiency programme, and address how it might bring forward incentives to encourage a closer dialogue between suppliers and manufacturers. The fuel poverty issue gives it an excellent pretext for doing so.

Meter type	Costs	Comments
Standard credit tariff	£50 - £70	combined cost of supply and installation.
Standard prepayment meter	£80 - £100	combined cost of supply and installation.
Smart 'Display' meter	£75 - £120	Supply and install. Includes cost of display unit. Potentially additional costs associated with pre-payment token systems.
Smart 'AMR/Net' meter	£100 - £170	Supply and install. Additional infrastructure costs eg wireless or powerline communications systems
Smart 'Internet' meter	£150 and upwards	Supply and install. Includes costs of TCP/IP stack. Additional infrastructure costs apply directly related to the number of additional services carried over metering system.

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