

NETWORKS

Ian Grant looks at the business case for government plans to install smart energy meters in all UK homes and offices

Wrong time for £10bn smart meters?

The government is expected to reveal this month how it will implement a £10bn plan to replace 47 million gas and electricity meters with smart energy meters, installing them in every UK home, office and factory by 2020.

The Department of Energy and Climate Change (DECC) believes smart meters will provide accurate real-time information on consumers' energy consumption, encouraging them to use less.

Smart meters promise to give consumers the ability to switch between energy suppliers almost instantly. Micro-generators will be able to sell spare energy back to the grid, and consumers will be able to trickle-charge their electric cars at the cheapest rate. There will be no more meter readers or estimated bills.

The project will "dwarf" the Digital Dividend project to convert TV broadcasting from analogue to digital technology, says David Southwell, a spokesman for the Energy Network Association (ENA), which represents companies that own and manage the energy distribution networks "Every home and office will have to be visited [to fit the new meters]," he says.

Impact assessment

The government's impact assessment found that the smart meter project would cost £9.3bn and return £11.8bn over 20 years. So is spending the money now on smart meters the right move?

DECC says the spending decision has been taken; still at issue is the roll-out plan. But last week, the government asked consultancy Accenture to take another look at the business case.

Guy Doyle, chief energy economist at consultancy Mott MacDonald, says there are cheaper ways to cut energy consumption.

The biggest impact consumers can make on their energy bills is to turn down thermostats, improve insulation, install energy-efficient boilers and lights, and swap cookers for microwave ovens, Doyle says. "Moreover, these savings are locked in."

It would be easier and cheaper to retrofit existing meters with a very basic energy meter. Consumers or en-



Power project: smart meter plan aims to cost £9.3bn and return £11.8bn over 20 years

ergy retailers could then use existing fixed and mobile telephone, satellite and cable TV networks, or possibly even the electricity grid for communications, he says.

The information transfer requirement is negligible, Doyle says. "Message sizes are a couple of bytes and they can update once a day. There would be some loss of functionality versus the premium solution, but the savings would be considerable."

He discounts the claimed benefits of extra information and control that smart meters and smart electricity grids could provide, pointing out that most of the grid is already under real-time control.

"There are about 300 grid supply point meters [which measure the change from high-voltage to low-voltage distribution] under real-time monitoring and providing very detailed information about consumption. One would want to be confident that the extra information from 28 million consumer metering points justified the cost," Doyle says.

Google's alternative

The energy industry is keen to manage meters through a centralised data network. But that might not be needed. Google is working with several energy companies, including Glasgow EPB, testing how to use personal Google pages to provide customers

with electricity usage data.

Southwell says smart meters are essential if consumers want to recharge electric cars at the lowest tariff, or generate their own electricity and sell any surplus to the national grid.

Easier to switch supplier

But the real short-term consumer benefit of smart meters would be to simplify and speed up switching between energy suppliers, says Doyle.

"A smart meter and grid would allow consumers to change suppliers almost instantly. Your supplier could take a reading while you were on the phone, say you owe so much, which you could pay by card, and the job's done," he says.

The other big advantage would be to cut the number of meter readers. Not reading meters would save energy firms £2.6bn, the impact assessment says.

But with unemployment close to record levels, could the government afford to throw more people out of work? Would meter readers be happy to retrain to fit smart meters?

Had the decision to refresh the UK's meters been taken six years ago, when the government's finances were stronger, there would be little argument. But the size of the national debt, the untested carbon saving, and the likely redundancies, suggest the case for smart meters now is unproven. ●

How would smart grid be controlled?

The type of communications network needed to control the smart grid will be a fundamental consideration in any decision on how the UK will roll out smart meters and convert the nation's 50-year-old electricity distribution network into a smart grid.

The question was the first asked in a consultation on how to replace the nation's 47 million gas and electricity meters by 2020.

The Energy Retail Association (ERA), which represents the six main energy suppliers, is keen on a centralised communications network. "A combined central metering management system (which includes communications network specifications) is the most effective way to govern retail and metering arrangements," it says.

Others argue that the grid could use existing telephone, data or television networks, the electrical power grid itself, or a combination of these. Or it could be run via regional rather than national networks.

Jason Brogden, project manager for the ERA's smart meter project, says interoperability is crucial for the different components that make up the system. The industry would prefer to specify the network in terms of application interfaces that cover the meters' functions, the wide area network, the home area network and the user interface, he says.

"The key thing is to define everything as a service," says Brogden. This would allow suppliers to provide innovative ideas for the meters, networks and the displays because they have only to ensure that their components can accept defined inputs and provide defined outputs.

Either the government or the industry could then use procurement policy to get competitive bids from smart meter manufacturers, installers and communications services suppliers, he says.

Meters shift green drive to demand side
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