A smart move?

New smart energy meters will be installed in our homes from 2012. But if you want to reduce your fuel bills, you can start today

The humble electricity and gas meters could soon be things of the past, under plans for every UK home to have smart meters installed by 2020.

Smart meters would allow suppliers to record remotely how much electricity and gas householders use, doing away with the need for estimated bills and visits from the meter reader. The roll-out of meters is due to start in 2012.

The government hopes that by giving consumers greater control over our energy use and costs, we'll adopt a more frugal approach which will reduce demand and cut greenhouse gases.

But it's energy suppliers that will make the biggest savings from smart meters, according to the government's own figures. They will save more than £306m in reduced admin, staffing and other costs, while consumers will save just £36.75m, that's £1.43 per home. And while suppliers will pay for the meters upfront, they'll be able to pass the costs on to us.

What smart meters could do

Smart meters have great potential. They could communicate with appliances to use power only when demand is low and energy cheap. At peak periods, a smart fridge could 'talk' to the meter and switch itself off, saving power and money.

For those producing their own energy with solar panels, wind-turbines and micro-generators, they could make selling energy back to the grid much easier.

But as things stand, the assumption that smart meters alone will help us save energy and money, is dubious.

What meters alone won't do

The problem is that smart meters alone won't give consumers any more real-time information on how much energy we use than existing meters. For that, wireless energy monitors able to measure energy use direct from a smart meter would need to be part of the government's plans.

This type of monitor isn't currently available and it would only work with a new smart meter.

However, there are monitors you can buy today to start taking control over your energy use. They may not be quite as accurate as the coming generation, but they're still pretty good. We've tested seven for accuracy and ease of use, and found three Best Buys.

Which? campaigns

Which? is campaigning to make energy bills simpler and to cut costs for consumers. We believe smart meters could really help, but there needs to be:

- a roll-out of portable wireless energy monitors to give real-time information consumers can use to cut energy use. The government agrees monitors are 'likely to be necessary' for consumer engagement but it doesn't force suppliers to provide them, putting the cost on to consumers;
- minimum standards set for meters and monitors so that they show rate of use, cost in pounds and cumulative use over a day, week, month and quarter;
- competition to encourage value and choice. The government's preferred option allows just one provider of meters.

For more on Which? research on energy, see www.which.co.uk/energy.

ILLUSTRATION PAUL PRICE

Energy monitors

Q How is an energy monitor different from a smart meter?

A As things stand, a smart meter will be just an electronic version of your current meter. It will tell you no more about how much energy you are using than your current meter. And it stays in one place, eg under the stairs.

An energy monitor tells you in pounds and pence and in real time how much energy you are using. Some will translate use into greenhouse gas emissions or other values, and let you compare data daily, monthly or yearly. Nearly all monitors are wireless, so you can use them around the house.

The next generation of energy monitors will take gas and electricity use data straight from smart meters which should make them very accurate and versatile.

It is these monitors that we think the government should require to be introduced as part of the rollout of smart meters.

The current energy monitors you can buy work only with electricity. They read electrical pulses around the home rather than straight from a smart meter. They're still pretty accurate.

Q How do current monitors work?

A They have a display unit, transmitter and sensor. A sensor clips round the cable protruding from the meter box to monitor the magnetic field round the power cable, measuring electrical current (amps). This is re-calculated as power used (watts), cost (£), and greenhouse gas emissions (CO_2).

Q Will monitors work with any type of electricity meter?

A Monitors we tested work on the assumption that you can clip the sensor to the phase supply cable which exits the electricity meter. For most homes this won't be a problem, but cables connected to some newer meters are encased. A power company engineer may need to remove the casing to clip on the sensor.

Q Can a monitor connect to a computer?

A Some can. See table, p22, for more.

Q Can monitors give information on individual appliances?

A The monitor from Current Cost can, if you add sensors. With any wireless energy monitor you can just turn appliances on and off while checking the display to see what power is being used.

Owl CM119 £34

Which? test score 80%

PROS This was the most accurate monitor. It's simple to use and has a large, clear easy-to-read LCD screen. The quick-start and troubleshooting guide is useful and the monitor can be used with up to four tariffs.

CONS The instruction text is small with little detail on accessing advanced functions. It can be tricky to fit batteries and to clamp the sensor on to newer power cables.

Accuracy (over 24hrs) at 1Kw +3.18% **3Kw** -0.56% **6Kw** -2.72% **Batteries supplied** Yes **We found it cheapest at** John Lewis and Tesco **Also available at** Argos

Eco-eye Elite £40

Which? test score 78%

PROS There's a large and easy-to-read LCD display and it's controlled by a simple three-button front panel. There's a memory function that allows you to check energy use over time. The quick set up and troubleshooting guides are useful.

CONS This unit only supports a single tariff supply and could be tricky to fit on to newer power cables.

Accuracy (over 24hrs) at 1Kw -3.54% **3Kw** -4.81% **6Kw** -5.67% **Batteries supplied** Yes **We found it cheapest at** Amazon.com **Also available at** Electricity-monitor.com, Energy-monitors-direct.co.uk

Owl CM130 Micro £25

Which? test score 71%

PROS This simple, accurate and easy-to read monitor is a bargain at this price.

CONS It may be too basic for some – there's no memory function to compare use over time, for example. The controls are on the back, making it fiddly, and it may be difficult to clamp the sensor to newer power cables.

Accuracy (over 24hrs) at 1Kw +0.42% **3Kw** -3.89% **6Kw** -5.97% **Batteries supplied** Yes **We found it cheapest at** Energy-monitors-direct.co.uk **Also available at** Asda, John Lewis, Tesco, Amazon.com and Electricity-monitor.com

COUNTING ON SAVING

Nick Perry, *IT manager, London*

Gadget fan Nick reckons that his energy monitor has helped cut his electricity bill by up to £200 a year.

One in ten Which? members has a monitor according to our survey, and most say it's saved them money.

Nick has an Electrisave Centameter monitor. 'I wanted to see how much power I'd be using in my new flat and save a bit of money. I'm a huge gadget fan too, so the monitor ticked all boxes.'

He said the monitor made it easy to tell what appliances use lots of power in a short period. He switched to an Economy Seven tariff (it costs less to use energy at night than in the day) and tries to use high-energy appliances, such as his dishwasher, at those times.

The monitor isn't accurate enough to check how much power less energy-intensive products such as light bulbs, use over longer periods.

USING THE TABLE
The more stars the better

Specification

Price For Best Buys we give the lowest widely available high-street price. If we couldn't find them at major high-street retailers we give the common online price. Prices for other models are a guide to what you should expect to pay. **Tariffs** More complex devices generally support a two-tariff electrical supply as a minimum (eg Economy 7) with programmable times and costs for each individual tariff. **Memory function** Can compare historical data over given periods. **PC use** Can connect to a computer.

Test performance

Accuracy We measured accuracy over three power loads: 1kW (1000 Watts), 3kW and 6kW in a 24 hour period. ★★★★★ accuracy within 5% ★★★★ within 7.5% ★★★ within 10% ★★ within 12.5% ★ within 15%. **Ease of use** Based on instructions, ease of connection and installation, and use of monitor once installed.

Score

Ignores price and based on:

Accuracy	50%
Ease of use	45%
Features	5%

ENERGY MONITORS	SPECIFICATION				WHICH? TEST PERFORMANCE				SCORE (%)
	PRICE (£)	TARIFFS	MEMORY FUNCTION	PC USE	ACCURACY AT 1KW/H	ACCURACY AT 3KW/H	ACCURACY AT 6KW/H	EASE OF USE	
OWL CM119 wireless electricity monitor	34	4	✓		★★★★★	★★★★★	★★★★★	★★★★	80
ECO-EYE Elite wireless electricity monitor	40	1	✓	✓	★★★★★	★★★★★	★★★★	★★★★	78
OWL CM130 micro wireless energy monitor	25	1			★★★★★	★★★★★	★★★★	★★★★	71
EFERGY E2 USB wireless energy monitor	50	2	✓	✓[a]	★★★★★	★★★★	★★	★★★★	65
CURRENT COST CC128 envi wireless energy monitor	40	2	✓	✓	★★★	★★	★★★	★★★★	58
EFERGY Elite wireless energy monitor	40	2	✓		★★★	★★	★★★	★★★★	56
ECO-EYE Mini wireless electricity monitor	40	1	✓	✓	★★	★★	★★	★★★★	48

a Comes supplied with USB lead, CD-Rom and software.
Other models require purchase of optional extras.

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