

Richmond Environment Network

Sustainability Briefing Papers - No. 7 - Energy Monitoring

How much energy are you using?

Why monitor your energy consumption?

Only by monitoring your energy consumption can you find out how much you are really using at any moment and the best and most cost-effective way to make improvements. It enables you to measure your progress in saving energy.

What's available?

There are various options depending on the level of sophistication and expense, from simple energy monitoring units you can install and read yourself, through to managed services aimed at large businesses. There is plenty of choice to suit your particular circumstances.

Smart Meters

A **Smart Meter** is an electricity and gas meter with an attached communication device (similar to a mobile phone) which constantly records accurate readings of energy usage (every half hour for electricity and daily for gas). Every day, the smart meter sends these readings through to the utility company, who then use this

information to provide accurate bills. Along with the free smart meter, the company usually provides an online account where you can view your daily energy consumption and monthly bills, at your convenience. Smart meters are only available from utility companies.

Over the next 11 years every household in Britain is supposed to receive Smart Meters, one for gas and one for electricity. This project will require a substantial investment as there are 48 million traditional gas and electricity meters to be replaced nationwide. Most companies are now carrying out limited trials in small areas.



Energy Monitoring Units

An **Energy Monitoring Unit** is a remote, digital monitor that works independently of the smart meter. This device provides users with a visible, quick estimated view of the electricity consumption at that moment. Some can also be set up to calculate and display how much it costs and the level of CO₂ being emitted. It is not a smart meter and is not 100% accurate so cannot be used for billing purposes.

Energy Monitoring Units are cheap, widely available off the shelf and all have similar features and prices. They are simple to install and there are two main types available.

The first consists of a unit which clips around the incoming supply cable to monitor the total current. This is then transmitted to the display unit which converts this, assuming a nominal voltage, to power in watts eg: total power used by a home.

The second type plugs into an individual socket to measure power used by an appliance such as a kettle. These measure both current and voltage and experience indicates these can give quite accurate readings.

They can be purchased with a built-in wireless connection to

communicate with your computer. Software is then provided so you can look at consumption and trends.



The British Gas Charity Energy Contract offers reduced energy bills and support to small charities. When you join they also send out a free OWL electricity monitor.

LB Richmond has installed meters from British Gas at 30 sites, mostly schools, which are connected to the local network for them to see how much they are using.

You can borrow an energy monitoring unit from Richmond Borough local libraries. A 3-week loan may be sufficient to highlight any major problems.

Other Alternatives

Various companies are now offering to install equipment to remotely monitor power consumption and then enable users to access the information

over the internet. Such systems need generally to be professionally installed and a rental is payable. Both electricity and gas consumption monitoring is offered, with units similar to utility company smart meters.

A simpler alternative is to log your own meter readings onto your computer, for which free software is available, eg from the Environmental Change Institute at Oxford University.

Conclusions

Until smart meters arrive in the area, then for most users a simple energy monitoring unit or number of units will generally suffice to give an indication of electricity consumption and how it varies. A wireless connection to a computer will then enable users to track their consumption easily and assess the impact of any changes.

Larger organisations could consider investing in a managed service but should obtain competitive quotations as installation and rental charges can be high.

Further Contacts

Energy monitoring units are available from a number of suppliers including:

Amazon who offer 'smart meters' from various suppliers - see www.amazon.co.uk.

Wattson - More stylish than other brands and costs more (£90-100 from, among others, www.ecosensations.co.uk).

Owl - See information at

www.theowl.com. Owl are suppliers of units, which are either stand-alone or can be connected wirelessly to a PC. Prices vary from £25-50 depending on features and customer supply arrangements.

Alert Me - See information at www.alertme.com. Alert Me are suppliers units, which are either stand-alone or can be connected to a PC via a wireless hub. They can also be used to control individual devices plugged into a particular socket. The cost of a basic system is around £50.

Details of the **British Gas** charity contract are obtainable from www.britishgas.co.uk/business/products-and-services.html or you can call 0845 076 3784 or email charitycontract@britishgas.co.uk.

Suppliers of monitoring services include **Meter Manager** Ltd whose Meteronline service (see www.ss3meteronline.co.uk) collects meter data via either the internet or mobile phone networks, processes this information and then delivers reports via a web based interface and email.

The software offered by **Oxford University** can be downloaded from websites: www.smeasure.co.uk (business) www.imeasure.org.uk (home).

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Linking, supporting, developing & promoting local environmental and sustainability activities.

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Email - info@richenvironmentnet.org.uk

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