

# 'People power' could be key to cutting workplace energy costs

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(Phys.org) —maginative new ways of empowering factory employees to cut energy use have been devised and successfully trialled by a consortium of UK universities and businesses.

In the new approach [energy usage](#) data is collected by specially developed low-cost sensors and fed into a live [3D computer model](#) of the factory that staff can consult on their PCs, enabling them to pinpoint where energy is being wasted. The sensors also automatically trigger text messages reminding staff to turn off lights and equipment that have been left on.

Thanks to innovative measures like these, a six month trial has seen reductions of up to twenty per cent in energy use at a Derbyshire factory,

proving that big savings can be achieved in factories and offices without the need for major capital investment.

Funded by the Engineering and Physical Sciences Research Council (EPSRC) and the Technology Strategy Board (TSB), this approach to boosting workplace [energy efficiency](#) has been developed thanks to expert input led by specialists in [clean technology](#) Moixa Technology working alongside the Universities of Dundee, Leeds, Southampton, University College London and a range of other industrial partners. The successful 6-month trial took place at the Federal Mogul factory in Chapel-en-le-Frith.

This success has been based not just on the sensors and computer software specially developed for the project (the sensors combine lightness with the robustness needed in a factory environment), but also on encouraging staff to take a more active role in energy saving.

Key innovations tested during the trial and showing particular promise included:

- A live, constantly updated 3D computer model showing energy use in different parts of the factory and sent to staff computers. A green/yellow/red [coding system](#) highlighted parts of the building and individual machines where energy consumption was excessive.
- Texts and emails sent to specific employees alerting them to take action – e.g. the 'last man out' at the end of a shift received a message just before they left reminding them to turn off unnecessary lights and machinery. (Details of which employees were present in the factory at any given time were automatically fed to the main computer system by the factory's existing 'clocking on' system).
- Competitions between employees on different shifts to see which

shift could achieve the most energy savings. Although no prizes were awarded, the kudos associated with victory was shown to provide strong motivation to save energy.

By contrast, the expensive, highly automated energy saving systems currently used in many workplaces (e.g. automatic lighting and climate controls) frequently fail to achieve substantial, permanent cost savings. As well as requiring substantial capital investment, they can unwittingly foster a 'not my problem' attitude towards all aspects of [energy consumption](#) and even towards other areas of business activity.

Project Manager for the consortium, Dan Mason of Moixa Technology, says: "The 'joined-up' approach to energy savings developed by the consortium, integrating different technologies and putting major emphasis on motivating and mobilising staff, really pays dividends. When empty areas are over-lit or computers are left on at night, for example, it's the workforce that's best placed to do something about it. Engaging with them about energy saving through workshops and interviews has been at the heart of the consortium's approach. What we've seen is that it really is possible to change people's mindset about energy use and get them to think what can I do to make a difference."

This innovative approach to [energy](#) saving is now being rolled out across the whole factory, with a view to extending it to other Federal-Mogul sites. Its potential to be adapted and customised means that it has considerable scope to be taken up by other businesses and the consortium is now exploring ways of making this happen.

Provided by Engineering and Physical Sciences Research Council

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