

Is finance the major barrier to improved energy efficiency?

Steven Fawkes questions the perceived wisdom that finance is the number one barrier to improving energy use

It was not surprising that respondents to the *Water Energy & Environment* energy efficiency survey* cited finance as the number one barrier to improving energy efficiency. This has been the refrain of energy managers and consultants as long as I have been involved in energy efficiency (more than 30 years now).

What exactly does it mean and why is it still true? An energy management programme is a machine on two levels: one for controlling energy usage day-to-day (through the use of tools such as monitoring and targeting); and one for identifying and developing a flow of viable capital projects for the organisation to invest in. If an organisation is reporting finance as a barrier, I assume it has developed more viable projects than it has approval for funding. If an organisation is not developing more projects than available finance, then lack of finance is not

really a barrier at all and in some organisations finance may be more of an excuse than reality – but let's assume that is a small proportion of the total universe.

If an energy management programme is effective and producing more viable projects to invest in than are being approved, then the problem becomes one of how to increase the flow of funds into energy efficiency.

Capital in any organisation is always limited and there are many claims on available capital – in classic capital budgeting three principles apply: firstly "offensive" capital spending, such as new product lines or expansion of existing ones, will have priority over "defensive" spending such as cost cutting.

Secondly, all projects with an Internal Rate of Return (IRR) greater than the cost of capital should proceed (rarely achieved in real life); and thirdly, of course, the higher the IRR the better.

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Below: Finance is perceived as the biggest barrier to implementing energy efficiency projects

Energy efficiency projects often have very high IRRs (quick payback periods) but are not approved.

One barrier to the very real perception problem that cost-cutting is never as attractive as generating revenue – just as at home, saving is never quite as rewarding as spending! In commercial organisations leaders tend to be promoted by generating revenue rather than by cost-cutting.

Energy efficiency also suffers from being very boring – it is seriously uncool – a hard thing to swallow for efficiency professionals. Maximising the internal flow of capital into energy efficiency requires:

- senior management to appreciate that efficiency is strategic
- increased confidence that the promised results will be delivered
- better projects with better business cases. Let's look at those in turn.

energy efficiency?

Efficiency is strategic

Catherine Cooremans at the University of Zurich has highlighted that strategy is about increasing competitive advantage, which has three dimensions: perceived value of the product; costs of production; and risk.

Energy efficiency can affect all three dimensions and is therefore in fact strategic. Despite high and volatile energy costs and threats to security of supply, energy is not regarded as strategic in most organisations. Related work at the IEA has looked at the many co-benefits of energy efficiency, which include those internal to the organisation, those in the energy supply system and those in the wider environment and society.

The IEA highlights that co-benefits such as increased productivity and increased employee engagement can be worth far more than the energy cost savings. Most business cases for energy efficiency simply look at energy cost savings and not strategic issues or co-benefits.

This tendency is heightened by the belief that energy is somehow special (the duality is that it is and it isn't) and by energy consultants and auditors. Although I am in favour of both standards for audits (EN16247 and the new compulsory audits under the Energy Savings Opportunity Scheme (ESOS)), I have a big concern that neither of these identify co-benefits or the strategic nature of efficiency and that we are in danger of undertaking another generation of energy audits that produce very little action – just like we did every decade from the 1970s.

More effort needs to go into increasing the understanding of the strategic

nature of energy efficiency – particularly amongst senior management who decide on capital allocations.

Confidence in results
We need to increase confidence in the projected savings among investment decision makers. Project performance risks cannot be discounted – although they often are

by energy managers – and efforts to minimise them should be taken. These should include the use of standardised development protocols such as those of the Investor Confidence Project (www.ecperformance.org) in the US and soon to be introduced in Europe, and better risk analysis of the variables that have the most effect on project performance.

Following implementation, at least for major projects, actual performance should be measured by Measurement & Verification and regular reporting and corrective action implemented.

The falling cost of metering and IT make this more possible than ever but it is surprising how few organisations actually do this. Only through post-investment monitoring can you learn from mistakes and increase investor (CFO) confidence in future project proposals.

Often energy efficiency projects, sometimes driven by vendors, are developed in a vacuum. An integrated approach, to project development – integrating non-energy aspects of the business and other efficiency projects – can greatly improve returns and reduce



Breaking the barrier – finance needn't stop efficiency investments

performance risks. When the efficiency upgrade at the Empire State Building was first developed it didn't use integrated design and the additional capital required did not meet the owner Tony Malkin's strict three-year payback rule – when it was rejected using integrated design it did get approval.

As well as developing better projects through integrated design energy managers and consultants need to develop better business cases – identifying and valuing the strategic and other co-benefits that come from energy efficiency.

Valuing some of these benefits is not easy but businesses routinely value self-benefits for other types of projects, particularly in advertising and marketing. In the 1980s there was a need to train energy managers in financial appraisal techniques such as IRR – now we need to increase their capacity to identify and value co-benefits.

Better business cases
An effective energy management programme that develops more high return projects than can be funded from internal sources also

raises the question of external finance through some form of shared savings. Although shared savings is not new – it dates back Borden & Watt in the 1900s – its growth has been hampered by many factors including small project size, lack of trust in the results, black box business models and high costs of capital.

Large institutional investors, market intermediaries such as specialist funds, energy service companies and energy suppliers are all looking for ways to scale the market. New models are emerging that offer the potential to turn efficiency into an outsourced service, analogous to those used in telephony and IT. If true outsourcing models can reduce net cash flows they should be attractive. Using these models, along with

protocols such as the Investor Confidence Project, should enable massive scaling up of energy efficiency investment and ultimately use of the \$100 trillion bond market – opening up an effectively unlimited pool of investment funds. At that point we can finally stop citing finance as the major barrier to energy efficiency. *Steve Fawkes is active in energy efficiency financing and the author of "Energy Efficiency" published by Elsevier and the blog.ahjenergy.com. *To see the survey visit theenergyst.com*

1700s
When shared savings schemes first originated

