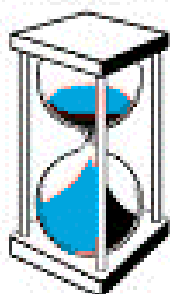




ACE

The Association for the Conservation of Energy

Energy efficiency in offices: Motivating Action



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The contents of this report, and any errors herein, remain the responsibility of the authors.

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CONTENTS

	<i>Page</i>
Executive summary	
Introduction	1
The issue	1
Current challenges in the commercial sector	1
Why focus on offices?	2
Study methodology	2
Results	4
Analysis of Questionnaire	4
Stakeholder Workshop	11
Draft Recommendations	15
Discussion	16
Participation	16
Ideas developed	16
Existing policy initiatives	16
Landlord-tenant issues	19
The role of the insurance industry	20
Under-sold benefits of energy efficiency	21
Stakeholder communication	21
Summary: emerging themes	21
Limitations	22
Recommendations	23
Actions for immediate implementation	23
Building a partnership	23
Selling energy efficiency	23
Enhancing Action Energy: expand existing elements	24
Results dissemination	24
Actions requiring longer-term planning and development	25
The role of the public sector	25
Enhancing Action Energy: new initiatives	26
Actions requiring further study	26
Fiscal instruments	26
Enhancing Action Energy: new evidence	26
Summary of recommendations	26
References	29
Appendix: Case Studies	30
Arup Campus, Solihull	30
Australian Building Greenhouse Rating Scheme	31
Corporate Social Responsibility as a driver	33

EXECUTIVE SUMMARY

This report details work undertaken for the Carbon Trust by the Association for the Conservation of Energy. It investigates barriers to greater energy efficiency in commercial offices, and proposes a number of solutions.

The issue

Final energy use in commercial services grew by 68.4% from 1973 to 2000, and this trend is expected to continue. Growth in CO₂ emissions from the sector has to date been kept in check by fuel switching, both for heating and for electricity generation, but this situation is not expected to continue for many more years. Recent policy papers such as the PIU review have highlighted the commercial sector as an area where more action is required. Offices are a good starting place within the sector, as they account for a significant proportion of the sector's total energy use and emissions, and also seem to offer the greatest potential for action to achieve significant savings.

Methodology

Existing commercial sector policy activity was identified through desk research, and an initial evaluation of effectiveness undertaken. Selected stakeholders from the commercial property world were then interviewed in depth for their views on issues and potential solutions. Their views were combined with the results of the desk research into a number of emerging themes. Finally, a workshop session was held to bring together the stakeholders and representatives of the Carbon Trust to discuss further a number of emerging potential solutions.

Participation and limitations

The work has benefitted from the participation of a number of enthusiastic individuals from within the property world. However, the present lack of priority given to energy efficiency in the sector was reflected in the difficulty experienced in gaining commitment from a range of people to both interviews and attendance at the workshop. Nonetheless, the views which have informed the work represent significant interests in UK insurance companies and pension funds, property managers, architects, consulting engineers and facilities managers. The one area where the sample was weak was owner-occupiers. The combination of small sample size and the lack of good representation of owner-occupiers does not invalidate the results: rather it suggests simply caution in implementing any recommendations without face value validity in the absence of further work.

Ideas developed

The existing policy initiatives identified were: building regulations; the European Buildings Directive; the Climate Change Levy; Enhanced Capital Allowances, Information / advice provision and business led initiatives. For each of these, a number of areas were identified where change would be beneficial. Additionally, a number of key areas for action were identified and discussed with stakeholders. These were: landlord-tenant issues; the role of the insurance industry, under-sold benefits of energy efficiency and stakeholder communication.

From these two strands of investigation, a number of themes emerged:

- Refining the main existing fiscal instruments (the CCL and ECAs) to make them applicable to, and effective in, commercial buildings;
- Selling the benefits of energy efficiency more effectively to commercial property professionals and users;
- Areas where Action Energy could be enhanced;
- The key role which public procurement and other public sector initiatives could play in transforming the market for (leased) commercial office space and
- Building more constructive relationships between landlords and tenants, and increasing communication between all stakeholders.

Recommendations

A number of changes could be implemented immediately. These include:

- Establishing a partnership forum to increase dialogue, encourage the sharing of best practice, and work to overcome differing perceptions of 'ideal' office space;
- Encouraging good design and early uptake of building energy labelling;
- Maximising the potential of Corporate Social Responsibility as a driver e.g. with the inclusion of buildings energy information in environmental reporting,
- Enhancing Action Energy by expanding the remit of the energy consultants register beyond Action Energy schemes and by making better use of existing information on the real costs of energy efficient buildings and
- Disseminating the results of this work to encourage ongoing dialogue and progress towards implementation of some of the more speculative recommendations.

There are some potential actions which seem reasonable, but require longer term planning and development. These include:

- Encouraging planning authorities to support energy efficient developments;
- Investigating the potential for the use of differential business rates to encourage a market for energy efficient office space,
- Amending public procurement practices such that the public sector demands a high level of energy efficiency in its leased office space and
- Encouraging high profile organisations to set energy efficiency standards which others will wish to follow.

Finally, there are a number of areas requiring further work:

- Understanding the impact of existing fiscal measures in the sector and proposing reforms,
- Gathering and disseminating evidence on the asset value implications of increased energy efficiency and
- Gathering and disseminating evidence on the user benefits of energy efficient office working spaces.

INTRODUCTION

This report describes a study carried out by the Association for the Conservation of Energy for the Carbon Trust between April and August 2002. The aim of the study was to develop some potential routes to increasing energy efficiency in offices in the UK, with a particular focus on actions which the Carbon Trust may be in a position to take forward in the short to medium term. The study was relatively small scale and, although some recommendations can be taken forward immediately, others may require further work developing the ideas they contain to a point where implementation of policy action could reasonably be expected to deliver results.

The remainder of this report describes briefly the issue of energy efficiency in offices and the methodology employed to develop some potential routes forward. The main results from the study are explained, and finally recommendations for action are stated, divided into those which could be implemented immediately, those which will require longer term planning and development, and those for which further study is needed before action will become possible.

THE ISSUE

Current challenges in the commercial sector

Energy efficiency policies and programmes in the UK in recent years have focused on the domestic and industrial sectors, and have tended to overlook the service sector.

However, final energy consumption in the commercial services sector grew by 68.4% from 1973 to 2000. DTI projections (DTI, 2000) of energy use in the service sector expect a continuation of this trend with energy consumption rising by around 0.7% (in both high and low price scenarios) per year up to 2010. In a high price scenario this outstrips growth in all but the transport sector. The drivers behind this growth are not entirely clear: if office energy use is compared with its contribution to GDP, the sector appears to be growing more energy intensive whilst, at the same time, comparisons of office space (m²) and energy use suggest increasing energy efficiency.

Growth in CO₂ emissions from the service sector (public plus private) have been kept in check by fuel switching from coal to gas for heating in buildings and in the electricity generation sector. The projections which underpin the UK Climate Change Programme (DETR, 2000) assume a continuing decline in carbon intensity in the electricity supply industry. While total electricity generation is expected to continue its rapid upward trajectory, over the next decade improvements in carbon intensity keep total emissions in check. If there is reason to question the assumptions made about the fuel mix in electricity generation (including a new 'dash for gas', a substantial ongoing role for nuclear, and a threefold increase in the use of renewables), then there is real cause for concern over the near future contribution of the service sector to UK CO₂ emissions. Furthermore, from 2010 emissions are set to rise *even under these assumptions*, and they will rise particularly quickly in the rapidly expanding (and electricity intensive) commercial sector.

The Energy Review produced in early 2002 (PIU, 2002) highlights the need to improve energy efficiency in buildings and recommends action to deliver a

phased transition to low energy commercial buildings through development of the Building Regulations. The Government consultation leading to the production of an Energy White Paper asks “*What possible ways are there for encouraging (or requiring) the owners of the existing stock of dwellings and other types of buildings to improve energy performance?*” (DTI, 2002, paragraph 2.8). The answer to this question, however was not addressed in the Energy White Paper itself (DTI, 2003).

Why focus on offices?

Within the commercial sector, offices, together with warehouses and retail premises, are a significant contributor to energy use and carbon emissions.

From these three sub-sectors, offices seem to offer the greatest potential for action to achieve significant savings: the range of technical solutions is not too large as the nature of energy service demands in offices is relatively homogeneous; a significant, highly cost-effective technical potential for savings can be identified; there is scope for a range of solutions tackling the problem from a number of angles if a range of the significant stakeholder groups can be engaged, and action by a small group of large stakeholders could change the market significantly.

Whilst both warehouses and the retail sector offer opportunities for improvement which should not be overlooked, they are not the most appropriate place to begin activity in this sector: for example, warehouses are difficult to define and therefore to target, and the retail sector covers such a wide range of energy end-uses that producing significant change will require far more complex policy design.

A more detailed assessment of energy use in commercial offices is found in *Energy efficiency in offices: assessing the situation* (Wade et al, 2003), a companion report to this one.

Study Methodology

The initial stages of the study resulted in careful definition of the problem to be addressed together with the key stakeholders whose opinions on potential solutions would be sought. This was achieved by a desk study updating an existing report on the topic by the Association for the Conservation of Energy (Scrase, 2000) together with a meeting with Carbon Trust representatives. This report is published separately (Wade et al, 2003).

The next stage was a stakeholder questionnaire. A list of key stakeholders to interview were developed in consultation with the Carbon Trust. The aim of the interviews was to elicit the views of stakeholders on the issues facing them relating to increased energy efficiency and the potential solutions available or required. Effort was made to ensure that the stakeholders contacted represented the range of commercial property interests in the UK market, and could comment from the perspective of a significant share in the market sector in which they were active.

Thirty two companies were approached. The interviewees covered all the major stakeholder groups identified during the project, and thus in this sense were representative of the market. We interviewed representatives of 2 of the 4 biggest property management companies, one of the top 5 architects, 1 of the top 4 consulting engineers and 1 of the top 2 facilities management companies. We talked to senior staff from UK insurance companies and

pension funds which, between them, own approximately 10% of all UK stock owned by this type of investor, and similarly, to individuals representing the owners of 10% of stock held in the portfolios of quoted property companies. One area where our sample was weak was in the owner-occupied sector: we estimate that our interviewees represented companies with just 1% of the stock in this sector.

Fifteen in-depth (1 to 1½ hour) interviews were carried out, largely by telephone but on occasion in person. The interviews were designed to define the respondent's perspective and then explore issues, as relevant, from the following viewpoints: own use of offices; property development; investment, and property management and lettings (both as core and non-core business). Each interviewee was asked at the end of the interview to define 'three things which would make a difference' in their ability to influence the energy efficiency of the UK commercial sector building stock.

The results of the interviews (in particular the 'three things which would make a difference') were combined with the results of the desk research into existing policy initiatives and a workshop was designed to develop further the ideas emerging. The workshop was held at the Carbon Trust's offices on 16th July 2002. All interviewees were invited to attend, together with the research team and representatives from the Carbon Trust.

The workshop started with an overview of the questionnaire responses and followed by break-out groups. These focused on the key triggers that had been proposed during the interviews, one group concentrating on finance and the other on legislation and standards. The consultation was conducted under Chatham House rules, that is, any comments are not attributable to the person or company without their express permission.

The results of the survey and workshop are shown in the next section.

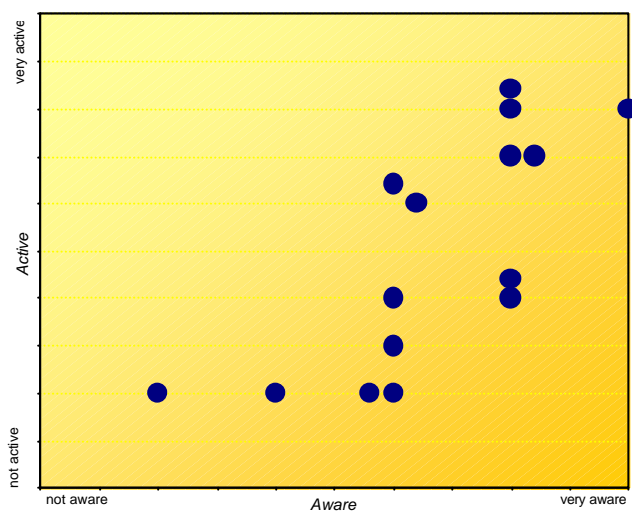
RESULTS

Analysis of questionnaire

Section 1: Company Profiles

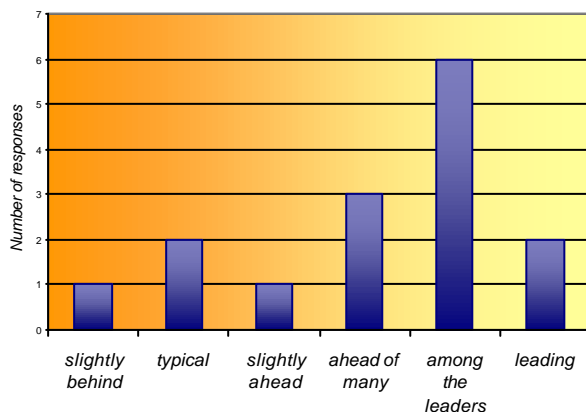
From the questions concerning the company's attitude to energy and the environment, their Corporate Social Responsibility (CSR), Socially Responsible Investment (SRI), sustainable development or environment policies an assessment was made rating their awareness of issues versus their activity in this area. These are shown in Figure 1, which shows that the respondents tend to describe themselves as aware of the issues but less active.

Figure 1: Awareness versus Activity in CSR in stakeholder organisations



The responses to the last question of all, “Are you typical of your industry?”, are plotted in Figure 2. They show that although one felt they were a little behind and some thought they were typical, on the whole our survey sample saw themselves as more environmentally active than their peers. This is a good reflection of the intentions in selecting the stakeholders, which was to get a spread of respondents on the whole but one which tended towards leadership in office energy efficiency matters.

Figure 2: Responses to “Are you typical of your industry?”



Section 2: Own Offices

The range of characteristics in terms of types of office owned or leased, regions, city centre or business park etc., were well spread, including all parts of the UK. Most had a prestige city centre HQ, most of which were in London. There was a tendency for regional offices to be standard non air-conditioned, but for most organisations “most” or “all” offices were air-conditioned. The business activity at the offices out of London was more a driver of specification than any regional issue.

Energy efficiency measures that had been implemented were concentrated on tackling user behaviour and “easy” technical fixes. A number of organisations were finding great difficulty in addressing user behaviour such as turning off lights and computers even overnight. Those taking a structured approach to energy management had found success by putting emphasis on energy saving opportunities such as replacement of old machines and one now required a feasibility study when new capital investment was proposed to see whether an alternative, lower energy option could be found, rather than replacing like with like.

The drivers and barriers to energy efficiency focused on cost, especially up front capital cost, and pay back time combined with lease lengths. This latter was important as the payback criteria for a 25 years lease with 20 years remaining is different from one with only 5 years left. These are both connected with the issue of low cost of energy, but specifically for most companies low levels of energy costs compared with the rest of business running costs, especially salaries. The other main issue was user awareness as stated above. Those that had installed energy efficient equipment then had trouble getting users to use it effectively – in some cases turning off equipment too often meant increased energy usage and losing the benefit of built in energy saving options.

Leasehold arrangements were often presented as a barrier. However more than one large company stated that their approach was to carry out the improvements to building fabric anyway, usually in consultation with the landlord, and if it meant a dilapidation charge at the end of the lease they would absorb it. The suggestion was also made that landlords were not concerned about these dilapidations in effect, as they saw the value of the improvements to their property. From the landlords’ side one company actively worked with tenants to identify where improvements could be made and encouraged application for ECAs (Enhanced Capital Allowances) where possible.

The underlying business drivers for energy efficiency improvements were corporate commitment through sustainability or CSR, or related mechanisms such as ISO14001 which requires continual improvement against targets, or MACC2 (Make A Corporate Commitment), a Government led environmental improvement programme. Business ethic was closely connected with this, but was more often a core value predating the rise of sustainability as an issue. Image and reputation were cited as important, with “our customers expect it of us” being stated by more than one respondent. There was a view among managing agents that image and reputation were key drivers and it was noticeable that companies who had a strong brand had a stronger set of environmental requirements than companies who had less public visibility.

Some noted that cost savings helped although others stated expressly that cost savings are not one of the issues that drive the investment.

Attitudes of managers and staff (users) to energy efficiency varies from very involved to disinterested. On the whole their interest tends to lag “corporate” interest, in that only those companies with a very strong corporate ethic had a similar level of commitment in their staff. Environmental matters figure strongly in their corporate communications and it was felt to be part of “what we do”. Other companies with high level of corporate commitment took the approach of making the information available on what was being done to engage interest, but most efforts were put into giving users little choice in their energy use. In these cases, facilities managers were providing the energy services: they reported that it was difficult to achieve the balance between achieving their energy targets and providing user services if users did not understand how to get the best from the equipment provided or how it benefited them personally or their department. The majority of respondents saw their users attitudes as one of ambivalence, and gave rise to some comments about the need for raising levels of awareness and understanding about the whole issue of energy use and climate change in order to achieve a culture change in the UK, not just their companies.

Section 3: Property Management (non-core business)

The respondents who were interviewed in this section were in the main insufficiently involved in this aspect of the business to give great insight, although the trend suggested by the responses from those that were familiar with the company’s approach was that energy in other offices was not considered as part of the company’s overall energy policy. Most left the arrangements for property management of these non-core properties entirely to an agent and had no connection with the tenants.

Section 4: Property Development

The stakeholders who responded in this section all considered themselves to be atypical of their industry in that they placed more emphasis on environment and sustainability issues in their buildings and their relationships with clients than standard. In this respect the responses represent what the researchers consider to be the leading edge of *standard* building practice (i.e. not necessarily leading edge building practice).

The measures that were included in developments tended to be driven by cost and a desire to achieve a certain BREEAM rating. Most of those interviewed had a strong commitment to BREEAM as the only widely recognised energy efficiency labelling system in the UK. The measures included depended on whether the aim of the client company was to achieve a “good” or “very good” or “excellent” BREEAM rating, which were in turn driven by client values and CSR commitment. Where these values did not drive the specification, then developers included any cost-effective measures they could, the most common being high frequency lighting, high specification boilers, advanced building management systems (BMS). There was some criticism that insufficient attention was paid to the building itself as a system, only to technical specifications. The main reason for this was thought to be that issues such as thermal mass and how it could be increased within the structure required thought, and required that thought early in the specification process. Quality of build and air tightness were key issues in actually achieving designed energy efficiency. There was some criticism of the UK construction industry in general as to lack of care and attention to the quality of the product.

The drivers for energy efficiency in property development was tied in with the expected building life. Although the life of office blocks in London seems to be

falling, the average UK office built now has a life expectancy of 30-40 years. Property developers or investors who hold buildings for 20 years need to "future proof" them - not only from the point of view of providing buildings that withstand changing climate over that time, but also ones which will be suitable given some expectation of stricter legislation, particularly in terms of carbon emissions.

PFI projects were thought to be an opportunity to build more energy efficient buildings now, as developers have a long term interest in the building and therefore benefit from the investment in energy efficient design. However a view expressed by the technical consultants interviewed suggested the current process of PFI contracts meant that design briefing came far too late in the contract negotiation to be effective. Developers suggested that where they themselves held a strong awareness of the benefits of energy measures, environmental issues were not only built into the PFI contract, but tended to give them an edge over their competitors in the bidding process.

Energy labelling was considered to be a driver, but there was concern that any system had to be good and lead to good building standards when it came in, not a return to the lowest common denominator approach as perceived by the Building Regulations. Companies did not want to be stuck with "white elephants", offices that were no longer up to standard and were difficult to let.

Barriers to energy efficiency were primarily the cost, or at least the perceived cost, as energy efficient buildings are thought to be more expensive, although there are thought to be good examples of those where no additional cost is incurred. The barrier is that many highly regarded offices have been built as prestige owner-occupied offices, where cost was less of a driver than in the leased market.

The problem of the landlord- tenant costs/benefits split was raised by all stakeholders. The developer or landlord wants a low capital cost which often leads to higher running costs for tenants. Tenants are often small and powerless at getting change, and often are not aware of or do not care about energy efficiency or the possibility of lower running costs in a more efficient building.

Section 5: Investment

The main aims of this section was to explore the factors considered to contribute to "investment quality" together with the attitudes of investors towards "green" buildings and to climate change.

The key driver is return on investment. How this may be achieved may differ between investors, and whether they are looking for high capital growth or income. The factors that are considered to give investment quality were described as location, flexibility and building quality.

It was pointed out that the RICS Red Book, which provides the definitive guide to valuation surveyors, makes no reference to sustainable development, energy efficiency or environmental quality. However two of the investor stakeholders interviewed consider environment and/or future proofing as key issues in their portfolio, one on a more defensive risk based strategy and the other based on ethical principles as well as risk.

In exploring attitudes to "green" buildings, those which took account of environmental issues in construction, including design, materials, energy in construction and use and impact on the local environment, most expressed no opinion. Of those involved in investment and valuation, most had not seen

any real examples of green buildings, or not at least that they would define as “green”. In general it was thought that as they were more expensive, they gave lower return on investment, and therefore were for owner occupiers only where the building credentials formed part of other business values. This view was challenged by other respondents who suggested that such buildings need not cost more, but required more thought earlier in the design process than currently occurred. As an investment vehicle it was pointed out that even if they were no more expensive to construct, they were valued higher, therefore attracted higher rates of business rates, tax and stamp duty, therefore driving the costs up with no expectation of a higher rental return.

It was also pointed out that rental income could be increased by including more variable costs in the service charges. The running costs should be less than in a traditional building, thus the landlord gains the benefits of the investment. Whether green buildings are inherently more difficult to let is an untested question. Those resistant to green buildings thought they would be more difficult, and until there was demand from tenants for them property investors would be unlikely to get involved in this market sector.

One investor actively pursues improved environmental performance of their buildings. This is a long process because it needs negotiation with tenants, and agreement on measures to be introduced. The most likely point at which changes would be made were at lease break points, when the policy was to make such improvements as were consistent with the building and the company’s policy, but active dialogue with tenants on sustainability issues took place at regular intervals.

The role of Climate Change was seen by most to be an issue for tenants rather than landlords. In this respect most saw the issue as being a responsive one that would increase reliance on heating and cooling to provide a reasonable working environment and thus depreciation of plant would be more of an issue than building fabric. Others took a more strategic view including impact of climate change on buildings both already built and those being built now, connected with the threat of increasing regulation and possible climate impacts. On the technical side concern about possible impacts meant there was a need for predictive tools now, but the business case for investment in more “climate friendly” buildings still needs to be built. Stakeholders gave information about the Institutional Investors Group on Climate Change, whose work currently focuses on two areas – the impact of energy or carbon costs (both embedded carbon and energy costs in use) and the impacts of warmer, wetter and/or windier climates on the buildings themselves. One respondent expressed some concern that increased regulation in the UK might push investors abroad, but on the other hand as climate change is an issue of international importance, there was also a view that London in particular was well placed to lead and become a better place to invest because its policies (if well thought out) led to a more secure environment for the property investor in the long term.

There was a general comment that socially responsible investment (SRI) teams were thriving in investment houses but were not yet having much effect. One comment was that “green” investors needed to be more committed to the additional costs of their investments at this stage – property investment requiring a more technical hands on approach from the SRI teams than the engagement required for SRI equity investment.

Investment drivers that were emphasised were:

- trustees and pension fund managers being involved in building decisions
- hard data which make the link between energy and asset value, and the willingness of Government to fund a major study to support this
- investors sticking to their principles and actually implementing their CSR and environmental strategies

The barriers highlighted were:

- the requirements and requests of clients in investment, in that investors merely responded to these (and currently return on investment was the only driver)
- not enough willingness of ethical investors to face the costs that are associated with genuinely making a difference

Section 6: Property Management & Lettings

The general response to issues about energy efficiency in property lettings was an overwhelming lack of interest and awareness from both landlords and tenants. A number of landlords took measures that reflected their own approach to the environment or CSR, but for most it was seen to be “off the radar screen”. The managing agent is the key link between landlord and tenant and their responsibilities lie in collecting the money for the client and providing the property functions described in the lease to the tenant.

Current trends in leasing may inhibit design for lower energy use. Although most leases are full repair and refurbish, allowing the tenants to make such changes as they think fit, there is increasing tendency for office blocks, especially multi-tenanted ones, to be let as “shell & core” i.e. the use of the office shell and provision by the landlord of core facilities such as a reception area, lifts, utilities etc. This leaves the internal design of the office to the tenant, who has to work around the heating and ventilation provided within the office fabric. Most systems are over-specified to allow for introduction of meeting rooms, sub-lets, computer suites etc. that can then use more heating or cooling in the confined area as required. Flexibility of office space to allow for growth and downsizing has also led to more flexible leases, with sub-let clauses, review and break points and renegotiation of key clauses. Leases remain the key legal mechanism, although the flexibility could also be an opportunity for energy efficiency, as well as a barrier.

Managing energy in a multi-tenanted block can be difficult and this highlighted not only the issue of allocating costs of energy use but also of making improvements to the fabric of the building. Whilst lease breaks or changes in tenancies are opportune times for taking action, few multi-tenanted offices have common break points, so the problem continues. The managing agents interviewed do not see it as part of their role to promote energy efficiency to tenants, but suggested they do consider it where cost-effective in lease negotiations.

Drivers for energy efficiency in property management were few, although one managing agent suggested that energy efficiency was a positive selling point for new clients. One key driver would be if there were good data that demonstrated that energy efficient offices provided a better working environment and that this produced greater productivity. The data to date mainly refer to the US mail service although some UK studies are now gaining prominence. The principal barrier was the landlord-tenant mechanism, with capital expenditure accruing to the landlord whilst the tenant gains the benefit

in reduced costs. The main reasons given were cost of energy efficiency measures, and neither the tenant, the manager, nor the client wanting to spend money up front. Ignorance of the benefits of energy efficiency, which then led to lack of tenant demand, was also cited. The low level of energy prices, the ability to negotiate very good energy contracts and generally low energy costs compared with other business costs were all barriers.

Section 7: Summary - Key Triggers

Stakeholders were invited to sum up their views by answering "What three things do you think would make a difference to energy efficiency in offices?" Responses by 15 people gave around 45 different answers, however some categorisation has been applied to draw themes together. These are shown in Figure 3, with the categories on the left hand side, and the number of responses categorised under that heading on the right. The full set of responses to this question, categorised by triggers, is summarised below.



Figure 3: Key Triggers - responses to "what three things would make a difference?"

Awareness: Increasing awareness of the issues of energy use, energy efficiency, carbon dioxide emissions and climate change. Climate change should be better understood; public perception of energy use needs to be addressed. This needs to translate into changing user activity such as leaving computers and lights on all the time, and for better understanding of embodied energy in the role of buildings and climate change.

Demand: this translates awareness into action to raise demand from clients, tenants, users, investors and anyone else in order to create a market for energy efficient offices

Financial incentives: including reduction in capital costs through grants and enhanced capital allowances (ECAs), and better payback for energy efficiency improvements. Suggestions included reduced tax or stamp duty tied to a high BREEAM rating, and equalising VAT on refurbishment to encourage investment in retrofitted measures. Some financial incentive was also thought necessary to address multi-tenanted buildings.

Legislation and standards: EU Buildings Directive was thought to give a good lead, although there was concern that the standards would be set too low.

Labelling of both buildings and energy efficient plant; the energy labelling of fridges was seen as an effective way of moving the market forward.

Other selected points

- Better feedback and monitoring of innovative building systems (and quality of build) was required, and the dissemination of such material addressed
- The business case for sustainability needs recognition
- The culture of “buildings as shelter” needs to change to “buildings as machines that have functions that aid business”
- Significant streamlining of Government support bodies is required to deliver energy efficiency without confusing the public
- Net benefactors from the CCL should be required to spend all additional monies on energy efficiency improvements
- Grant mechanisms work against economies of scale so that some organisations who could have a larger impact on energy saving do a number of small projects which attract grant rather than the larger ones that don't.

Stakeholder Workshop

Themes emerging or developed during the workshop

The group agreed that they viewed their commitment to energy efficiency in offices (or to energy as one strand of an environmental policy) as a major factor in increasing awareness of energy as an issue in property management and investment. The view was expressed by many that they lead the “pack” but that they need to get more property professionals to join them, and that this was beginning to happen. For the most part, the response in the workshop represents those developments that could help move mainstream thinking towards best practice.

There are significant barriers to change; overcoming these requires long-term policy or cultural change:

- Awareness of the public on climate change issues
- Awareness of tenants of the need to reduce energy consumption
- Awareness of clients that they can “demand” improved energy efficiency, or that buildings have a function in terms of thermal comfort, not just as shelter
- Achieving improved market valuation for energy efficient buildings
- Improving the quality of construction workmanship to achieve designed energy efficiency

However there are also drivers that help move the issue forward; momentum already exists in:

- Corporate social responsibility or sustainable development policies or other ethical core values
- Building Regulations (Part L)
- Environmental reporting
- Benchmarking

These and other themes were discussed in the workshop in two groups. The issues developed in those groups, finance and legislation/standards, and the potential solutions devised, are presented below.

Financial issues

The themes reviewed included enhanced capital allowances (ECAs), the Climate Change Levy (CCL), Emissions Trading Scheme (ETS) and return on investment (ROI).

Enhanced Capital Allowances ECAs

- ECA scheme not an effective mechanism for energy efficiency in offices
- only available on equipment¹; useful in retrofit but excludes systems such as controls and building management systems
- doesn't make efficient options cost competitive on an initial cost basis -. crucial to decisions as to whether they will be included in a refurbishment as standard
- difficult for smaller companies to use, require a good understanding of finance, tax status and tax rules

Climate Change Levy CCL

- design directs it to the wrong people.
- neutrality is very crude - an irritant rather than an effective mechanism
- need to see that installing energy efficient plant leads to a reduction in costs that are seen within the same management accounting category, not just across the whole company costs.

Emissions Trading Scheme ETS

- cost per tonne of carbon crucial - £7 or £8 per tonne far too low for new build at the moment - saving 1000 tonnes of carbon in a new build project valued at £3m is no incentive
- too easy to cheat and too much hassle; companies with very low past activity were doing very little to achieve a major saving in energy use
- suggest credits for high efficiency buildings, developing a rigorous methodology and making it easy to claim

Return on Investment

- issue of balance between property income and costs to tenants

¹ This issue was addressed in the UK Budget of April 2003

- landlord earns money from rents or from service charges and can balance income between these
- rent tends to be market driven - service charges are more a function of the premises and services provided
- for the tenant, property costs include not only rents and services charges but also local rates which are set by the local authority
- energy efficient buildings perceived to be more expensive to build
 - higher value, for ROI rents or service charges need to be on the high side of the market
 - that makes the rateable value higher also, thus the tenant pays more in every way for an energy efficient building
- more work needed both to research and publicise the benefits of energy efficient buildings to landlords and tenants, including - comfort and controllability afforded by energy efficient offices - leads to greater tenant satisfaction, lower “churn” and reduced void times as well as an expectation of good returns.

Trigger Points - “When to take action”

- Ongoing corporate understanding thought to be the key to adopting an energy aware culture – involves partnership with an adviser
- easiest for larger tenants and owner-occupiers.
- small tenants, including small branches of large organisations, have difficulty negotiating or being aware of the opportunities for change, especially in multi-tenant sites.
- lack of review points was an issue and legislation is needed to drive change forward.
- landlord-tenant relationship is conflict (a peculiarly British trait in business relationships) rather than partnership. Developments of partnership working were to be welcomed and promoted.
- systems and designs that optimise energy use and ensure the overall outlay to the tenant (taking account of the outstanding lease) is not increased.
- lease length is an issue for all landlord-tenant initiatives as the payback is not only time-related but related to the lease length – “cost-effective” options may not be cost-effective in situations of flexible leases

The key trigger points would be:

- when the building is empty (linking this to the Buildings Directive and the trigger points for energy rating). This is a recognised point at which action is easy to take
- for a tenant - mid-lease during lease reviews. This doesn’t often happen and would require change in lease thought processes

Legislation, standards and labelling

The group addressing these issues expressed the view that client demand for energy as an investment quality factor was more effective than regulation and they welcomed the Buildings Directive initiative for energy labelling as a key

driver. Raising the profile of energy efficiency standards in buildings could create a new element of competition in the market.

Energy Labelling

- optimism that ranking CO₂/energy labelled buildings would create demand
- building functionality is still the prime requirement
- occupiers likely to choose an energy efficient building only if all else was equal
- BREEAM is a recognised label and has the potential to be developed but does not cover whether an office is managed energy efficiently.
- Gap needs to be addressed through developing a benchmarked labelling system that includes energy usage.
- British Council for Offices (BCO) has a role to play by including energy performance in their Category A etc. space and should be encouraged to adopt this practice.

Role of Planning Authorities

Although not strictly legislation, the role of planning authorities was discussed as they are seen as instrumental in delivering policy that requires lower energy offices. This could be done through regional carbon targets, with the incentive of fast track planning permission for certain projects. The whole influence of strategic regional planning could make a major contribution to office energy efficiency.

Public Procurement

- key role to play in raising the basic minimum requirement for office accommodation
- Government bodies are recognised as leading in NHS, school etc accommodation; they need to lead in offices by reporting at a level whereby companies can compare energy efficiency performance in public offices with their own
- public bodies are welcomed by property managers - seen as good tenants, but also they accept the lowest standard at present so they provide the baseline for minimum “investment quality” office accommodation
- there is a requirement that all public new build should be “BREEAMed” but this does not apply to new leased accommodation

Corporate Social Responsibility CSR

- competitive attitudes of companies towards their peers are important e.g. Business in the Environment (BiE) rankings
- companies active in CSR tend not to apply the same principles within their dealings with property (yet)
- targeting and reporting on emissions in other (operational or process) parts of the business needs to be linked to property decisions and the emissions that result from buildings
- compulsory environmental reporting with energy as a key issue distinguishing between buildings and process an effective mechanism as

corporate management does not want to risk accusations of running the company inefficiently.

Information

There is insufficient information to enable general managers (as opposed to energy managers and buildings professionals) to take action. They need easy access to:

- How (and why) they should operate an energy efficient office building
- Case studies and systems, and where to find them

Rather than setting up a blanket marketing or promotional approach, it was thought more effective to concentrate on getting high profile organisations to set the standards so that others follow. This may be literally, on taking over buildings previously occupied by the these organisations, or figuratively, by following the ideas disseminate at conferences.

- reliability and availability of information on environmental impacts of materials and life-cycle energy use in a form that was easy to use is difficult to find
- guides such as BRE's Green Guide to Office Specification and the Environmental Profiles database, have limited information and do not always allow for the lifecycles appropriate to current office building and refurbishment practice.
- assumptions on energy use in buildings need to be re-assessed. If the life of offices has reduced substantially from the accepted 50 year life of a building for life-cycle assessment purposes, then embodied energy and construction energy use may be as significant as the energy used in the building during its lifetime.
- Need for those involved in cost approval to understand least cost building and appreciate the value of a fully equipped building for energy efficiency

Draft Recommendations

A number of core themes emerged from the workshop.

- Design of financial instruments
- Energy labelling
- Environmental reporting and CSR
- Role of the planning system in energy in the built environment
- Evidence on energy efficient buildings
- Importance of embodied energy compared with energy in use and access to life-cycle impacts assessment
- Public procurement as a benchmark
- Partnership working

The recommendations derived from the possible solutions outlined above are discussed in more depth in the next section.

DISCUSSION

Participation

The willingness of the interviewees to devote a significant amount of time to the interview reflects a welcome degree of engagement on the part of these individuals with the issues involved.

However, gaining commitment for the time required for the workshop proved more difficult: a small number of interviewees were unavailable on the date chosen (although the majority of these expressed a wish to comment on the draft recommendations), but of those who initially agreed to attend, only 47% actually arrived on the day.

It is also worth noting that little feedback on the initial recommendations has been received, other than from representatives of the Carbon Trust.

These comments reflect the broader low level of awareness and lack of priority given to energy issues which are in themselves major barriers to action in this sector.

Representativeness of the respondents

It proved impossible to define comprehensively the market in other ways such as tenure split or to obtain fully quantified information on the proportion of the total stock represented by the stakeholders we interviewed. Much of the information required is either not systematically recorded for offices separately from the rest of the commercial sector (e.g. tenure) or is commercially confidential (e.g. market share). However, the interviewees represented companies known to be amongst the largest in their sectors in the UK; which owned stock / were active in property development of management throughout the country; which dealt with properties in urban centres and business parks, and covering a broad range of ages and were designed with and without air conditioning.

Ideas developed

In our initial desk study, we identified a number of key areas in which it seemed possible or necessary to make progress: existing policy initiatives; landlord-tenant issues; the role of the insurance industry; under-sold benefits of energy efficiency, and stakeholder communication. In this section our initial findings are summarised, together with developments resulting from the interviews and workshop. The ideas remain grouped by their original headings, although in many cases the interviews and workshop discussions have led to a broadening of the topics. The section concludes with a redefinition of emerging key themes based on these developments.

Existing policy initiatives

Initial desk review identified the following existing policy approaches which either focused on the commercial sector or at least included it:

- Building regulations;
- The European Buildings Directive;
- The Climate Change Levy;
- Enhanced Capital Allowances;

- Information provision and advice, and
- Business led initiatives, such as the ongoing update British Council of Offices 'Office Fit Out Guide 2000'.

More background information on each of these initiatives is included in *Energy efficiency in offices: assessing the situation* (Wade et al, 2003). Where policy developments have occurred since the interim report to the Carbon Trust was written (e.g. in the case of the European Buildings Directive) additional references are given.

Building regulations

At present the energy efficiency requirements contained in the building regulations are relatively modest compared with the potential improvements available from cost-effective and readily available technologies.

The feedback from stakeholders during the interviews and the workshop suggests that an upgrade of the regulations is not seen as a key mechanism for improvement: whether this results from a desire for a more fundamental shift towards best practice design or a dislike of regulation is not clear.

During the workshop, a related discussion was held on the possible role of planning authorities in delivering lower energy offices. Options discussed included regional carbon targets and the incentive of fast track planning permission for developments which exceeded minimum efficiency standards.

The European Buildings Directive

Whilst the Buildings Directive includes provisions for minimum efficiency standards for new buildings and major refurbishment, perhaps the most effective element in the present context is the need for energy certification on all buildings (European Council, 2002²).

Property developers interviewed during this work suggested that, for companies presently ahead of the field in energy efficiency terms, BREEAM ratings were a major driver for increased investment in energy efficiency, provided that client values / CSR commitments resulted in demand for energy efficiency. Concerns regarding an expansion of energy labelling centred around a desire to ensure that the system led to a drive for good building standards, rather than the perceived 'lowest common denominator' approach embodied in the Building Regulations.

In the workshop, the energy labelling elements of the Directive were welcomed. Their potential to raise the profile of energy efficiency was seen as an opportunity to create a new element of competition in the market. However, building functionality will remain the prime requirement, and energy efficiency will only be acceptable if all client requirements are met. The issue of rated performance versus actual, and the related topics of building management and user behaviour were also discussed.

The Climate Change Levy

The impact of the Climate Change Levy, in its present form, is limited in a sector where energy costs represent such a small proportion of total costs.

² The Common Position was accepted by the European Parliament on 10th October 2002, and the Directive came into force on 4th January 2003.

One suggestion raised during the interviews was that companies which are net beneficiaries from the combined introduction of the Levy and the restructuring of employers National Insurance contributions should be required to spend all additional monies on energy efficiency improvements.

The consensus from the workshop was that the relatively crude nature of the CCL as it stands results in it being seen as an irritant rather than an effective mechanism. In particular, returning to the compensatory mechanisms employed, there was a feeling that at the time of review of the Levy the mechanisms should be redefined such that investment in energy efficiency becomes the clear way that cost savings, within the same management accounting category, can be made.

Enhanced Capital Allowances

The introduction of Enhanced Capital Allowances for a limited range of energy efficiency investments is a welcome positive step, but the incentives it offers may not be large enough to overcome the barriers in this sector. Voluntary agreements with government (e.g. as made by the hospitality industry) may be a way to complement the allowances and enhance their effectiveness.

The potential usefulness of ECAs was reinforced by general comments during the interviews about the importance of up front capital costs and relatively stringent pay back requirements (particularly from a tenant's perspective). However, in the workshop a number of criticisms of the present system were put forward. Interviewees suggested a number of additional financial incentives, including: grants; reductions in tax or stamp duty linked to high BREEAM ratings, and alternative (unspecified) incentives to address multi-tenanted buildings. Emissions trading was discussed at the workshop but, although welcomed as a potential mechanism, it was not seen as an option for large scale use in the commercial sector in the short to medium term.

Information provision and advice

Action Energy is the main existing source of information and advice, and already has a wealth of information which may be helpful in overcoming barriers in this sector. Workshop participants felt that there was insufficient information targeting general managers (rather than energy managers or building professionals). Concentrating on getting high profile organisations to set the standards for others to follow was seen as a key mechanism here.

Many of the comments received during the interviews provide insight into for whom information should be produced, and indeed what sort of information is required. These ranged from a perceived need for a general increase in awareness of energy efficiency and increased concern for climate change amongst the whole population (the single most popular answer to the question 'what three things would make a difference?') to comments that the attitudes and awareness of managers and staff tend to lag behind 'corporate' interest in all but the leading institutions, making the job of day to day energy management more difficult.

Interestingly, views varied on whether cost-savings were a key message with which to drive investment decisions. However, one area in which cost, or the perception of it, did seem to be key is in the overall cost of new buildings. Energy efficient buildings are seen as more expensive: this is not in fact necessarily the case and the perception may rise from the concentration of energy efficient exemplars in the prestige owner-occupied sector where cost is

less of a driver than in the leased market. There is thus clearly a need for information dissemination in this area.

A system of quality assurance for energy efficiency advice, covering activity outside the remit of Action Energy as well as within it, would be a positive development.

Business led initiatives

Promotion of best practice from within the property industry itself should be a good thing. However, there is a danger that advice from industry sources may not go as far as Action Energy in pushing best practice.

There were no specific comments on such initiatives during the interviews. However, during the workshop, Corporate Social Responsibility as a driver was discussed. The opinion was that although CSR is becoming increasingly popular amongst companies interested in maintaining a certain reputation, for full effectiveness compulsory environmental reporting with energy as a key issue was probably required.

Landlord-tenant issues

The large proportion of UK commercial sector stock owned by large institutional investors and leased to tenants is often cited as one of the major obstacles to increased energy efficiency in the sector, as the benefits of lower fuel bills may not accrue to the party most easily in a position to invest in the energy efficiency measures required to bring this about. Our initial literature review suggested that the problem may be exacerbated by the structure of commercial leases (see Wade et al, 2003).

Interestingly, those interviewed had generally focused on energy efficiency activity in their own offices by tackling user behaviour and 'easy' technical fixes such as choosing efficient options when replacing equipment. There was no obvious difference between owner-occupiers and tenants in this. All stakeholders did however raise the landlord-tenant split as a problem: in particular, there was a common perception of tenants as often 'small and powerless'. Note that small tenants in this respect can include branches of large companies. The situation can be very different for large tenants: more than one of our interviewees, acting as tenants, stated that leasehold arrangements were not a barrier for them, and that landlords often welcomed energy efficiency investments as general improvements to the building.

Increasing flexibility in leases was seen by some property managers we interviewed as potentially inhibiting energy efficient design. Whilst the 'full repair and refurbish' conditions do allow tenants to make alterations as they see fit, there is an increasing tendency for 'shell and core' leasing: i.e. the use of the office shell plus core facilities provided by the landlord. In this latter case, tenants themselves are responsible for office fit-out. Tenants must 'work around' the space conditioning and lighting systems installed, and systems have to be over-specified to cope with all possible space configurations which tenants may choose. Also, theoretically cost-effective options may not be considered good investments when flexible leases are in play, as the time a tenant company may remain resident in a property is less easy to predict. Conversely, increasing flexibility in terms of lease break points and review clauses may provide opportunities rather than barriers to energy efficiency.

There are positive signs: one investor we interviewed pursues improved environmental performance of their buildings actively, via regular dialogue

with tenants. Although lease break points were seen as the most likely point at which change could be made, such active dialogue may be a way in which the problems of different lease break points in multi-tenanted buildings could be addressed.

However, the overall picture remains one of landlord and tenant apathy towards energy efficiency, with a few notable exceptions amongst landlords and tenants whose corporate attitude to the environment or CSR commitments produced more innovative practice.

Public procurement was seen as a key to changing the nature of the leased office space market: public sector organisations are seen as good tenants and hence are welcomed by property managers. There is also a view that they accept the lowest standard of accommodation: hence their demands set the standard for minimum investment quality premises. From these observations, it seems clear that a concerted push from the public sector for energy efficient space could greatly assist market transformation.

The role of the insurance industry

Our initial research identified the insurance industry - which owns around 15% (by value) of the total commercial property stock in the UK and which has expressed concern about the potential business implications of climate change - as a key stakeholder group which policy activity should seek to motivate. Some initial signs of industry led activity were also identified (see Wade et al, 2003).

Interestingly, in our interviews with investors, climate change was seen by most to be an issue for tenants rather than landlords. Most saw the key problems as reactive ones, such as the potential need for more heating or cooling, although some were taking a more strategic view, thinking about potential climate impacts on buildings and a possible threat of increased regulation.

The key driver for all investment companies remains return on investment (ROI). Factors affecting investment quality are location, flexibility and building quality. The RICS (Royal Institute of Chartered Surveyors) Red Book (the definitive guide for valuation surveyors) makes no mention of energy efficiency or environmental quality. Most investors had no opinions to offer concerning 'green' buildings - most felt they had not seen any real examples thus far. The perception remains that they are more expensive, will give lower return on investment, and are therefore only for owner occupiers interested in building credentials. One point to note is that respondents who accepted that energy efficient buildings may not be more expensive to construct nevertheless felt that they would be valued more highly and therefore attract higher business rates, stamp duty and so on. Whether this perception reflects reality, or is simply based on a small sample of prestige examples, is hard to determine. Nonetheless it is potentially an important barrier.

The issue of ROI was discussed during the workshop, and the focus was on the balance between property income and costs to tenants. For the landlord, income comes from rent (market driven) and service charges (a function of the premises and services provided). However, for tenants an additional cost is local rates. The possibility of lower rates for energy efficient buildings was raised.

Under-sold benefits of energy efficiency

Our literature review covered work on the link between an energy efficient office environment and worker satisfaction, health and productivity. Although such links are difficult to demonstrate conclusively, there is a growing body of evidence on the user benefits of energy efficiency which is not as yet being used sufficiently well in selling energy efficiency's benefits.

Ignorance of these links, together with a need for more UK-based evidence, was cited by interviewees as a problem when discussing drivers for energy efficiency in property management. The comfort and controllability of an energy efficient office was seen as a potential selling point to increase lettable and reduce 'churn' and void times.

Stakeholder communication

Despite concern about environmental issues amongst stakeholders, most seem to feel that action by themselves is hampered by the interests and actions of other stakeholder groups. This 'vicious circle of blame' was described by the Government's Sustainable Construction focus group in their report on a sustainability strategy for the construction industry (SCFG, 2000).

We initially identified a number of initiatives attempting to increase communication about energy efficiency between the different stakeholder groups in the market for office property, and by doing so to break the 'circle of blame'.

Discussions with stakeholders during the interviews reinforced initial impressions: managing agents do not see promotion of energy efficiency as their role; creating demand for energy efficiency from tenants, investors and so on was one of the 'things which would make a difference' cited by a number of interviewees, and the potential for re-shaping the PFI process to allow more end user input into the energy efficiency of buildings (and then to ensure dissemination of the impact of the resultant good practice) were all ideas which came out from interviews.

During the workshop discussions of the landlord-tenant 'problem', a further element of stakeholder relationships emerged: the landlord-tenant relationship is seen as one of conflict rather than partnership (possibly a peculiarly British situation), and any moves to develop partnership working would be welcomed.

Summary: emerging themes

Fiscal instruments

The main existing fiscal instruments (the CCL and ECAs) are seen as potentially worthwhile but presently not effective in the commercial sector. Refinements are needed to the CCL to make it more applicable to the commercial sector (see recommendation 11, below), and ECAs need both expanding and simplifying (recommendation 12).

Selling energy efficiency

There are a number of areas where energy efficiency could be 'sold' more effectively to key commercial sector decision makers. In particular, the full potential of the Buildings Directive must be accessed through careful design and prompt implementation of an energy labelling system for offices (recommendation 2) and the strength of corporate social responsibility as a driver must be expanded through the use of compulsory reporting mechanisms (recommendation 3).

Enhancing Action Energy

A number of ideas could be implemented through enhancement of Action Energy. Expansion of existing elements (recommendations 4 and 5); implementation of new initiatives (recommendation 10) and gathering new evidence (recommendations 13 and 14) all have a role to play.

The role of the public sector

Public procurement is seen as a key element in a market transformation strategy for commercial buildings (recommendation 9) and local authorities could encourage energy efficient buildings both through the planning process (recommendation 7) and by the use of differential business rates (recommendation 8).

Building a partnership

More constructive relationships between landlords and tenants, together with increased communication between all groups of stakeholders is needed to assist in the development and efficient functioning of a market for energy efficient office space (recommendation 1).

Limitations

There are two key limitations of the study which must be recognised.

Firstly, the sample of interviewees was very small. Whilst this does not invalidate the ideas developed, it should lead to caution in implementing any which do not appear to have a clear validity or on which the respondents were divided. To allow for this, some of the recommendations below have been categorised as requiring further study before action is taken. In addition, we are recommending wide dissemination of the results of the study, to enable feedback to be incorporated into the ongoing development of all policy and programme activity.

Secondly, all the respondents represented large organisations, although some experience small business conditions at times, for example in regional offices located in leased premises. There are recommendations made below which will affect small businesses in addition to large ones, but the degree to which they will be able to respond is less certain. Further work to address the small business sector (not only in offices) is undoubtedly required.

RECOMMENDATIONS

Actions for immediate implementation

Building a partnership

1. Co-ordinate and support a partnership forum

Stakeholder communication (or the lack of it) was identified as a major barrier to progress. A forum to encourage such communication could therefore be useful. Participants in the forum should include representatives of professional and trade bodies from the property market to ensure dissemination of ideas; individuals from pro-active companies to provide impetus and best practice examples, and government and/or agencies to ensure that the work of the group focused on defined policy objectives.

To engage stakeholder groups and maintain their interest, the forum would have to focus fairly quickly on deliverable benefits for the participants. These could include mechanisms for information exchange (e.g. an web-based forum for discussions and the sharing of best practice); working groups to develop the agenda for needed research; opportunities for input into government and implementation agency policy and programme formulation, and a bank of easily accessible best practice information to illustrate the benefits of co-operative working (see case study on p30). Working groups within the forum could be used to overcome specific inter-stakeholder issues such as the traditionally confrontational approach between landlords and tenants.

Such a forum would require co-ordination and administration for it to be effective, and there is also a need for a more comprehensive set of proposed outcomes to be developed before the idea is promoted widely to the stakeholder groups involved.

Selling energy efficiency

2. Engage in the design process for energy labels

Energy labelling for buildings was identified as a key element of efforts to build a market for low energy office space. Although the European Buildings Directive will introduce labelling, there is work to be done to ensure that this is effective. It is important that this work begins now, to ensure that the difficult process of bringing together the preferences of all interests involved is completed in time for swift implementation of the Directive.

It is vital that the design of an energy labelling system for offices (and other commercial buildings) results in the early definition and implementation of labels which are considered by the industry to be robust and meaningful. Input from property professionals at the design stage is crucial. The Carbon Trust is already contributing to this process through its financial support for the European 'Europrosper' project.

Once the labelling system is developed, a scheme which accelerated its uptake in advance of the legal requirements of the Buildings Directive, would contribute to the avoidance of lost energy efficiency investment opportunities. An example of the voluntary introduction of buildings energy labelling is given in the case study on page 31.

3. Incorporate energy efficiency into corporate environmental reporting

A second aspect of building a market for energy efficient space is the level of activity by market-leading companies. Many such companies already are taking steps towards implementation of corporate social responsibility policies, and the reporting of these could include energy use elements.

Guidance on how to measure and incorporate energy use in buildings is a vital step in this process, and will require input from a central, respected source such as the Carbon Trust. Equally, the 'reputation' benefits of reporting high energy efficiency need to be sold to key companies. The case study on page 33 gives an example of how two different sets of corporate drivers have led to an emphasis on energy / environmental reporting as an element of corporate image.

The developments in corporate environmental reporting following the Company Law Review provides an opportunity to encourage energy use reporting from a wider range of companies. Representations to the DTI/DEFRA guidance group on this matter would be helpful.

Enhancing Action Energy: expanding existing elements

4. Establish a consultants register which applies to work outside that of Action Energy

Existing registers of competent energy consultants, such as that for Action Energy, need to be expanded and made more generally available. Potential users also need to be aware of their existence.

This will require the participation of both a competent authorising body and its funders, and the energy consultants themselves.

Establishment of a broad register would help to overcome the barrier to proactive market building by consultants which has arisen due to the lack of energy competence within the property world: property professionals are unwilling to take advice on e.g. the Climate Change Levy and appropriate responses to it from unknown consultants operating in a field about which they know nothing, unless some form of quality assurance is available.

5. Make better use of existing information on the real costs of energy efficient buildings

It is vital that the perception of energy efficient offices as expensive to build is challenged. Evidence of 'ordinary' energy efficient offices (rather than prestige 'image' based premises) must be disseminated effectively to counter this perception.

For this to occur, co-operation of companies employing energy management good practice is needed, many of whom will have received advice in the past through Action Energy. Also, engagement of RICS and co-operative work leading to the inclusion of energy efficiency elements within its Red Book is important.

Results dissemination

6. Engage a broader audience in the process of policy formulation using the results of this study

An obvious early action is the dissemination of the results from this study. The aim of this dissemination must be to gather further comment from the property world and from energy efficiency policy experts. To this end, a

combination of conference and journal papers with a set of informal meetings with stakeholder groups may be the most appropriate way forward. Additionally, 'news' articles in trade press would be worth considering.

The annual meeting of the British Council of Offices may provide a forum, if the theme for next year's conference is appropriate. Similarly, British Property Federation activities may provide an appropriate channel.

Actions requiring longer-term planning and development

The role of the public sector

7. Encourage planning authorities to support energy efficient developments

The current consultation on planning and pollution (ODPM, 2002) includes climate change as an issue of relevance. However, further work is needed to require planning authorities to develop coherent strategies for energy efficient buildings, and to encourage supporting measures such as the fast-tracking of planning consent for energy efficient / sustainable developments.

There is a need for guidance to planning authorities based on an analysis of situations where elements of energy efficiency / sustainable energy have influenced planning decisions.

Planning fast tracking would reduce the time land remained unproductive and would therefore provide developers and investors with a direct incentive for energy efficiency based on the return on their investment.

Dialogue with local government and RDAs (Regional Development Agencies) is needed here, together with some research into both activity to date and the impact it has had on developers and their investors.

8. Investigate the potential for the use of differential business rates

Local authorities could encourage the market for energy efficient office space by offering reduced business rates for space which meets efficiency standards in excess of the minimum required by the building regulations.

This would assist property owners / managers to 'sell' energy efficient offices as having a direct and measurable impact on the running costs of the building.

The development of such a system would require definition of appropriate efficiency standards and development of example rating systems which would enable local government to maintain required levels of income (or negotiation with central government for a compensatory mechanism which ensured that local authorities implementing the reduced rated would not suffer financially).

9. Influence the public procurement process

The transformation of the market for leased commercial property needs a large demand-led driver. As the single largest tenant bloc, the public sector has a key role to play.

Central and local government procurement policy should include energy efficiency as an issue, and the existence and impact of the policy should be promoted to the commercial sector.

The Office of Government Commerce and individual departments / local government representatives need to be involved in the development of policies and standards: OGC to set the minimum acceptable, and more innovative

individual organisations to drive the standard up through the adoption of best practice.

Enhancing Action Energy: new initiatives

10. Encourage high profile organisations to set the standards

High profile examples of energy efficient offices were seen as a key to engaging the wider business community. An awards scheme which highlighted best practice, and provided corporate publicity opportunities for leading edge companies which invested in new build energy efficient premises, refurbished to a high standard or employed best practice in day to day energy management could provide these examples.

This would help to unlock much of the existing potential for action which is being held back by a perceived lack of market demand for energy efficiency, and would complement the introduction of the labelling requirements in the EU Buildings Directive. It would address in part the perceived need for a general increase in awareness of energy efficiency. Such a scheme could incorporate elements such as annual focus areas to encourage activity in 'difficult' market segments (e.g. activity by tenants within a multi-tenant site).

Participation from a number of market leading companies would be crucial to the success of the scheme. The involvement of trade and professional bodies from within the property industry would enhance the scheme, but may not be sufficient in itself, as concerns have been expressed that the industry itself may not push best practice as far as ideally required. Hence, the involvement of government or government agencies in the definition of the scheme and potentially in its financing may be required.

Actions requiring further study

Fiscal instruments

11. Investigate the impact of the CCL on the services sector and on multi-tenanted buildings

Whilst it is clear that the CCL is not having an impact on service sector energy use, there is a need for some additional research to define exactly why, and whether / how it could be redesigned to change this. Also, there are specific problem areas which require investigation, such as barriers specific to businesses occupying multi-tenant buildings.

The basic lack of engagement with energy efficiency issues from within the property sector suggests that the definition of this research and its funding must come from those with an interest in maximising the effectiveness of the Levy.

12. Investigate options for reform of the ECA system

Key barriers to the effectiveness of the ECA system which were identified in this study included the range and types of investments covered.

Expansion of the range of options eligible for ECAs is a core element of the Carbon Trust's role. Within this, a focus on developing mechanisms whereby systems in addition to individual products could be covered is important.

Beyond this, dialogue with the Treasury is required to explore extension of the allowances to cover buildings-related measures as well as 'plant and machinery': this might require an extension of the definition of eligible

measures or a re-definition of buildings as items of business machinery. Input from both property professionals and energy efficiency experts would be required here.

Enhancing Action Energy: new evidence

13. Gather and disseminate information on the asset value implications of energy efficiency

Although there are publications on energy efficiency which target a wide range of audiences in energy using companies, there is a general feeling that the main concerns of investors (i.e. return on investment) is not addressed by the information as it is currently presented.

Further research is needed to define exactly what information asset managers require, and the language most appropriate for them. The co-operation of professional bodies such as RICS would be helpful here.

14. Gather evidence on the user benefits of energy efficiency in UK offices

There is much anecdotal evidence which demonstrates that people prefer to work in less mechanically serviced environments, and that these preferences can be seen as something which should be taken into account as part of general good practice in business management.

UK based, clear evidence of elements of the user benefits of an energy efficient environment is needed, together with links to general good management policies and practice.

Summary of recommendations

Recommendation	Barriers addressed	Key participants and roles
1. A partnership forum delivering benefits to all participants	<ul style="list-style-type: none"> Lack of stakeholder communication Common misperceptions Landlord tenant confrontation 	<ul style="list-style-type: none"> Pro-active companies to provide best practice Professional associations representing key stakeholders, to disseminate information Government / govt. agencies to ensure policy relevance
2. Design and promotion of energy labels for commercial buildings	<ul style="list-style-type: none"> Lack of market demand for energy efficiency 	<ul style="list-style-type: none"> Property professionals to provide a 'reality' check Energy professionals to ensure quality The Carbon Trust: already involved in funding projects
3. Inclusion of energy efficiency in buildings in CSR	<ul style="list-style-type: none"> Lack of perceived activity amongst market leaders 	<ul style="list-style-type: none"> Pro-active individual companies already engaged in CSR An independent source to provide guidance and advice The government to broaden uptake
4. Establish a consultants register	<ul style="list-style-type: none"> Lack of trust in energy efficiency advice Confusing variety of sources 	<ul style="list-style-type: none"> Energy consultants to join the register A competent body to screen potential members A funder
5. Better use of exiting cost information	<ul style="list-style-type: none"> Misperceptions about the cost of energy efficiency Lack of guidance to valuers from RICS 	<ul style="list-style-type: none"> Organisations providing examples of energy management good practice RICS to channel information to valuers A funder to translate case studies into guidance
6. Dissemination and discussion of the results of this work	<ul style="list-style-type: none"> Gaps in information and understanding defined by the work 	<ul style="list-style-type: none"> ACE and the Carbon Trust to disseminate results E.g. BCO / BPF as main dissemination channels

7. Encourage planning authorities to support energy efficient developments	<ul style="list-style-type: none"> • Offset perception of additional effort and cost associated with anything other than standard practice 	<ul style="list-style-type: none"> • Planning authorities and RDAs to provide examples of current activity and insight into impacts • Developers to respond to proposed solutions • A funder and research team to translate practice into policy suggestions and guidance
8. Differential business rates	<ul style="list-style-type: none"> • Overcome lack of market demand for energy efficiency with a visible selling point 	<ul style="list-style-type: none"> • Pro-active local authorities to suggest potential mechanisms • Central government to ensure legality and income neutrality
9. Use public procurement to effect market transformation	<ul style="list-style-type: none"> • Lack of demand for energy efficient office space 	<ul style="list-style-type: none"> • Individual public sector organisations to set best practice • OGP to set minimum standards and pro-formas for the majority to follow • Energy efficiency expertise to set appropriate standards
10. An awards scheme which highlights best practice in new build, refurbishment or energy management in use.	<ul style="list-style-type: none"> • Lack of general awareness of energy efficiency • Lack of leading exemplars to pull the market • Lack of practical solutions for 'difficult' market segments 	<ul style="list-style-type: none"> • Market leading firms: competing for the awards • Industry bodies: endorsing and promoting the scheme, plus possible financing • Government: implementation of the Buildings Directive; management and possible funding of the scheme
11. Investigate the impact of the CCL in the sector and reform as appropriate	<ul style="list-style-type: none"> • Shortcomings in effectiveness for commercial sector and for multi-tenanted buildings 	<ul style="list-style-type: none"> • Research team and funder to carry out the work • Sub set of stakeholders from the commercial property sector (e.g. facilities managers) to provide evidence • Central government to implement changes
12. Investigate and implement options for reform of the ECA system	<ul style="list-style-type: none"> • Lack of relevance of the system at present for energy efficiency in buildings 	<ul style="list-style-type: none"> • Stakeholders to define changes necessary • Central government to design and implement changes • Co-ordinator to collate suggestions and present to government
13. Present energy efficiency in the language of asset managers	<ul style="list-style-type: none"> • Lack of understanding of the impact of energy efficiency on ROI 	<ul style="list-style-type: none"> • Research team and funders to evaluate what the investment / asset management communities need and produce guidance in the appropriate form • Appropriate professional advisors (e.g. RICS) • Dissemination channels
14. Gather evidence of user benefits of energy efficiency	<ul style="list-style-type: none"> • Exclusion of energy management from the basic elements of good management practice 	<ul style="list-style-type: none"> • Organisations providing evidence of management good practice which includes energy management • Research team and funders to translate evidence into guidance

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APPENDIX: CASE STUDIES

Case study: Arup Campus, Solihull

Name of Company: Arup Associates

Written by: Lotte Ramsay

Company contact: Mike Bevan/Daniel Wong – Arup Associates

Recommendation supported or illustrated by case study:

Communication between actors in commercial building development can facilitate the production of more energy efficient buildings that are still viable in a commercial market place.

Description of issue

Arup Associates (a multidisciplinary Architecture and Engineering firm) began developing the Arup Campus complex in 1998. The Campus development was originally conceived to combine two existing AA sites in the West Midlands. A suitable site was found in Solihull, in the new “Blythe Valley Business Park”.

Initial plans considered acquiring the site from the park’s developers – and constructing an owner occupied complex. However, it was eventually decided that a partnership would be sought with an outside developer who would lease back the building to Arup on a 20-year agreement. It was intended that the tenant (AA) would specify and design the building in full collaboration with the developer (BVP Developments), who would then lease the development back for a commercial rent. At every stage of development other commercial property agents (DTZ etc.) were also included in the process to ensure that the final product fully satisfied developer requirements for a commercial building in the real market place.

The resulting complex was designed to allow the retention of as much user control as possible and included the following low-energy features:

- Natural ventilation
- Steel frame & pre-cast concrete floor (to provide thermal mass)
- Louvered timber shutters (manual) to control solar gain
- Fully openable windows
- Maximised natural lighting opportunities (via ‘roof pods’ and extensive glazing of facades)
- Automatic lighting controls

In addition, although the building is naturally ventilated the void space and additional areas for A/C plant have also been allowed for. This maximises the market potential for the building, and as it was a factor designed into the building from the offset it did not significantly alter the cost.

The development utilised a ‘cost benchmarking model’ that established the costs of a typical Midlands based commercial office with air-conditioning, of a similar scale to the Campus site. This allowed the cost effectiveness of the innovative development to be monitored and an analysis of where trade-offs that

would facilitate a more environmentally friendly could be incorporated.

For example, because the Campus buildings are naturally ventilated the spend on mechanical installation was around 18% lower than in a typical construction. This saving allowed additional spend on the innovative roof design, and external cladding of the building. Using such a holistic approach that combined both financial and design issues and involves a range of different actors has meant that the resulting output from the Campus development is a low-energy office complex that meets the needs of the tenants completely, whilst also providing the developer with a product that is fully competitive in the current commercial office market.

Reasons why started/undertaken

The original design brief was developed subsequent to a staff survey covering the two sites that were due to be amalgamated in the Campus complex. Their views on the most important features the new building were canvassed and used to drive the initial building specification. The two most important features, highlighted as essential for a good working environment were: natural ventilation and plenty of car parking facilities.

Problems overcome

Developing a design that would be both energy efficient/sustainable and acceptable to the commercial offices market was the key sticking point in the project. The Campus design is highly innovative, proposing such a deep plan, naturally ventilated space proved controversial – and was initially viewed with scepticism by some of the project partners who did not believe that such a design could be acceptable to the commercial offices market.

The designers felt that they were very much working against the tide to change the perceptions of the market that something so different could fit meet the bottom line requirements. However through a (long) process of communication with other stakeholders in the project the design team managed to convince the other partners that this project was feasible and to show that sustainable building can meet the criteria set in the commercial marketplace.

What might prevent others from doing the same

Arup Associates are an international company with a forward thinking attitude towards office development and environmental credentials that their offices should live up to. As they are themselves actors in the commercial office development arena they are well placed to understand how the commercial office market operates – which puts them in a powerful position as tenants. And as Architects and Designers they are well informed to make decisions on appropriate trade-offs that can be made within a building without sacrificing utility or environmental credentials and still remaining within budget.

Other organisations without such strong in-house expertise might have more problems getting exactly what they wanted from a development of this nature.

Future recommendations

Communication has been a key factor in driving this development. Convincing all parties that this was a workable design when it appeared to be at odds with the usual office construction that the market will accept has been a great feat. However it does show that through communication between all parties in a project sustainable, energy efficient developments that bring in a commercial rent at no extra cost can be achieved.

Case study: Australian Building Greenhouse Rating Scheme

Name of Company: Sustainable Energy Development Authority (SEDA)

Written by: Lotte Ramsay

Company contact: Sue Salmon (NSW Sustainable Energy Development Authority/ Australian Building Greenhouse Rating Scheme)

Recommendation supported or illustrated by case study:

Development of a simple, voluntary energy labelling system for commercial offices can be a key step in changing the market for energy efficient buildings. Allowing tenants the information to compare energy use and running costs and giving developers and landlords the opportunity to market their energy efficient developments

Description of issue

Developed in 1998 by the Sustainable Energy Development Authority (SEDA) of New South Wales, the Australian Building Greenhouse Rating Scheme (ABGRS) is a star rating system for commercial offices. A national steering committee headed by SEDA (consisting of a representative from every state in Australia, members of the Property Council of Australia and the Facility Manager Association) advises on the schemes development and strategic direction.

The rating system is linked to operational energy consumption. This includes all air conditioning, lighting, power used by office equipment, lifts etc. The methodology is a simple calculation based on the energy consumption in the *operational* building (preliminary ratings are given for designs – but the final certificate is only awarded once the building has been monitored in use). The ratings available using this methodology are split down into 3 levels:

1. Base Building: For multi tenanted buildings this rating takes account of all communal areas (usually presided over by the landlord/building services manager)
2. Tenant Rating: For multi-tenanted buildings a “Tenant Rating” is obtained by combining the additional tenant energy consumption (e.g. extra air conditioning, office equipment, lighting etc.) with the Base Building Calculation.
3. Whole Building: The entire building energy consumption.

Although the rating is expressed as a “greenhouse gas” rating the actual measurements are only taken from energy consumption. Analysis has revealed that unless the building conforms to very high standards of energy efficiency the greenhouse impact of commercial buildings comes overwhelmingly from energy consumption. By incorporating the greenhouse gas element into the rating system it allows account to be taken of buildings including elements of co-generation or those that have committed to a low-carbon/renewables energy tariff.

The energy rating is expressed on a star allocation from 1 to 5.

1 = very poor and below average – little consideration of energy efficiency

2 = average performance – usually represents the market average

3 = best practice

4 = strong performance

5 = best performance

Stars are allocated on the basis of buildings achieving a certain greenhouse rating per M².

Reasons why started/undertaken

Greenhouse gas emissions from the Australian commercial sector (both public and private) have risen by over 44% from 1990 to 2000, when total annual emissions topped 45Mt CO₂. Australian Greenhouse Offices projections are that this trend will continue into the next decade. Of this figure over 46% of emissions from the commercial sector come from offices and retail premises.

There is clearly a need to address this huge increase in energy consumption and associated emissions. However, the existing market for energy efficient commercial office space is currently hampered by a familiar range of barriers (as seen in the UK commercial sector) that lead to a lack of demand for office space with heightened environmental credentials:

A two-pronged policy approach to solving the problem has been adopted by the governing body in the New South Wales area of Australia.

1. Mandatory building standards including minimum targets for energy efficiency

AND

2. A voluntary energy rating and labelling system that would grade commercial office buildings according to their energy consumption and emissions profile.

The voluntary aspect is kept very much separate from the negotiations on the mandatory minimum energy standards. In the hope that any voluntary scheme will be able to support those that are already committed to energy efficient building – without having to go through rigorous consultation that might lower standards and lessen the opportunity for innovation in this sector.

Benefits especially unforeseen ones

To date over 120 accredited ratings have been carried out. In addition the web based rating tool also allows companies to unofficially assess and monitor their own performance.

An additional initiative, encouraging large commercial tenants to use the scheme has also been developed. Large tenants (such as Accenture, Qantas, Compaq and many public sector groups) have signed up to a voluntary agreement to use the ABGRS on all buildings they occupy and to bring those buildings up to at least 3 stars (current sector best practice). Some of the tenants in the Initiative are also using the ABGRS when sourcing new space. For example the NSW Police Service have used it to source 32,000 sq. metres of new space for their new headquarters requiring the developer to deliver a 4.5 star building using the

Commitment Agreement. Both the developer's bonds and the rent review are tied to achieving 4.5 stars ongoing for the life of the Police Service tenancy.

Although the rating system started out as a voluntary scheme some States are now using the ABGRS as a benchmarking tool for new buildings. For example, in the City of Sydney all new office developments must achieve a minimum 4.5 stars.

Problems/Issues experienced

Existing rating schemes that commercial sector actors are utilising concentrate on creating an attractive, productive environment, in particular schemes that offer clear public relations benefits for those that take part. Other, technology based systems are less well used. With this in mind the ABGR system is marketed primarily on the basis that it is a very simple tool that can help developers to achieve a market advantage by taking part in the scheme and gaining good ratings. Other advantages of cost saving through installing energy efficiency measures are noted – but as secondary benefits.

In addition, who should take responsibility for energy use in a multi-tenanted block is a clear problem to be faced by any labelling/rating scheme for commercial offices. In the ABGRS this issue has been resolved by allocating all *shared* energy in a block to each tenant on a pro rata basis. The tenant's additional energy consumption is then added to this "communal energy" value to achieve a "tenant rating".

However, tenants in multi tenant blocks need to have access to individual metering in order to deduce their individual "tenant rating". As in the UK many multi-tenanted offices do not have the facility for measuring exact energy consumption for each tenant in a block. To overcome this, alongside the voluntary ABGRS, new (mandatory) building regulations have been developed to include compulsory individual metering facilities for each tenant in a multi tenanted block in all new build developments.

What might prevent others from doing same?

Nothing.

Future recommendations

The system has been developed by SEDA after considerable consultation with key office stakeholders in the New South Wales Area. As a voluntary scheme it has allowed the market leaders to set challenging new targets for building developers and landlords. It has gone some way towards generating a genuine market for energy efficiency in commercial buildings. Further plans to develop this scheme into a national initiative are underway – however this is dependent on more funding and greater Government support.

There is a clear opportunity for UK to develop a similar rating scheme, especially with the advent of the European Buildings Directive. A voluntary scheme of this nature, developed in tandem with key commercial sector stakeholders could pave the way for a mandatory scheme – speeding up the implementation of the Directive and maximising opportunities for introducing high standards of energy efficiency in the office sector as soon as possible.

Case study: Corporate Social Responsibility as a driver

Name of Companies: Land Securities and IBM-UK

Written by Jacky Pett

Company contacts: Dave Farebrother (Land Securities), Jon Thompson (IBM-UK)

Recommendation supported or illustrated by case study:

Environmental reporting and CSR are a vital driver in energy efficiency.

The competitive attitudes of companies towards their peers can be utilised as a strong driver for energy efficiency. Rankings such as Business in the Environment (BiE) and the development of Corporate Social Responsibility (CSR) are important to the company's reputation, yet companies active in these areas do not yet apply the same principles within their dealings with property. The demand to target or report on emissions in other (operational or process) parts of the business needs to be linked to property decisions and the emissions that result from buildings.

This case study compares and contrasts two companies with very different management and industrial settings but who both rank energy in buildings as a prime issue.

1. Land Securities published their first Environmental Report in 2001.

Reasons why started/undertaken

Land Securities is the largest UK quoted property investment, development and property services group and it recognises its responsibility to minimise the potential for causing harm to the environment. There is a corporate ethos of environmental management, and a desire to be the most environmentally friendly property company operating in the market. Recognition as such would enhance its reputation and assist it to secure additional major contracts as a consequence.

Description of issue

Energy is one of the most important of their environmental impacts. BREEAM assessments are undertaken for all office developments and for others where applicable (BREEAM versions are not yet developed for all types of building). Where tenants are known in advance there is a dialogue to get the best practicable BREEAM rating consistent with their operational and financial objectives. Energy in operation is monitored through a Monitoring & Targeting programme across all managed sites. Land Securities is engaging with its tenants to raise awareness of energy use and opportunities for energy efficiency.

Energy is reported on within the environmental report, separated by type of office and fuel type, giving the floor area applicable in each case. They also report on CO₂ emissions from buildings and from company car mileage to give an aggregate CO₂ emission figure. They have also published their baseline data for their five operational premises.

Benefits especially unforeseen ones

The ready availability of energy data is helpful when negotiating supply contracts, as this can help secure more preferential terms.

Problems overcome

Although the development team have had some success engaging with clients on energy efficiency, tenants do not always recognize the importance or advantages of being energy efficient. The capital cost of energy efficiency measures is often not reflected in rental levels, and service charge constraints can also limit the improvements that could be carried out in occupied premises. Land Securities has also tried to offer energy manager services to tenants but over the last 5 years the level of take-up has been disappointingly low.

Compliance is policed by the Energy and Environment Manager. Although initially staff did not always understand the full implications of the company's environmental policy and objectives, there is now no question of the efforts made to ensure that these targets and requirements can be met. This has been achieved through personal contact, discussion of the issues, training and environmental panels in each business unit, an internal newsletter and the introduction of an annual Environment Day throughout the Group. External recognition, in the form of awards and good results in a variety of surveys, has also helped to promote a wider understanding of the business drivers.

What might prevent others from doing same

The main issue is whether corporate managers recognise the impact the company can have and that it is worth making the investment to change. It depends whether the company's reputation is important.

2. IBM made a global commitment to reduce its carbon emissions by 4% year on year

Reasons why started/undertaken

IBM's energy management programmes date back to 1974 when its formal policy was issued calling for the conservation of energy and materials in the design and manufacture of its products.

In the early 90's the corporate energy conservation goal was modified, to further promote the use of renewable energy, to "achieve energy conservation savings each year equivalent to 4% of IBM's actual annual and electricity and fuel use, by improving energy efficiency and giving credit to renewable energy use". This is a matter of corporate pride; it is not widely reported outside IBM and not used as a marketing tool, although there have been presentations at external conferences. The main mechanism is through IBM's internal "Environment and Well Being" report made annually to all employees world-wide.

Description of issue

Each IBM region (UK is within the EMEA North region) is expected to achieve its own 4% reduction in energy use, which it reports at an annual global conference. All forms of energy are covered, and energy use within buildings is key. There are about 60

sites in the UK, one is manufacturing and the others are classed as data centres, including customer IT services, and offices. Building energy programmes are managed by IBM Real Estate with their facilities management partner Johnson Controls, who jointly have responsibility for achievement of energy targets.

The drive for overall energy reduction was a major factor in the specification of the refurbishment of newly leased offices at Bedfont Lakes, Middx. In any asset management project, such as new development or refurbishment, the opportunity is taken to factor in energy efficiency as part of the specification.

Benefits especially unforeseen ones

Better cost control through automated systems; energy management is through IT applications that are now enabled for invoice management, bill validation, tariff analysis and energy management reporting. This gives environmental conservation and cost avoidance savings.

Engagement with employee concerns. Although response from employees is mixed as with most energy efficiency initiatives, concentration on the “quality of life” aspects has found favour, with employees in the UK taking up the challenge of improving their personal energy efficiency. This has helped to publicise and reinforce building messages such as turning off lights and computers when not in use, but unfortunately does not go far enough in letting each department know their actual energy use and enabling them to make departmental commitments.

Problems overcome

One issue for the energy management group was that inefficient plant used to be replaced like with like rather than automatically looking for energy efficient alternatives, which might be operational savings not just technical ones. The ten year asset management plan now has an annual rolling appraisal, possibly with feasibility assessments, to check the most energy and cost effective solutions to provide the system function, not just the process or product.

What might prevent others from doing same

The strength of IBM’s internal “family” is the major inspiration in this, there is no external driver. Sophistication in automated systems is also an issue, although most companies could achieve this with appropriate consultancy.

Future recommendations

For both IBM and Land Securities, the strength of the commitment to energy reduction as part of their corporate social responsibility policies has driven purchasing and product decisions. Both see business benefits from this commitment, but both would admit that the investment in education and systems is not small. The key to whether other companies make a similar investment is likely to be determined partly by the emphasis given to CSR by city analysts, and whether a strong CSR policy and performance will be considered as an investment indicator.