

Appendix H

External drivers for integrating sustainability into estates management in the HE sector

This appendix is a commentary on six programmes that are likely to have a significant impact on the way in which energy is used in the UK HE sector. It was first written in January 2002 and then updated in April 2003 by Dr Ian Knight of the Welsh School of Architecture, Cardiff University.

The programmes likely to have an impact on the way the HE sector it manages its estate with regard to energy use, cost and procurement of buildings are indicated. The list is not exhaustive.

The programmes are:

- a. EC directive on the energy performance of buildings.
- b. UK Government's White Paper: Our energy future – creating a low carbon economy (February 2003)
- c. New Part L of the Building Regulations – effective 1 April 2001.
- d. UK Government's Sustainable Development Commission.
- e. UK Government: DTI and sustainable construction.
- f. Market transformation programmes.

a. EC directive on the energy performance of buildings

Web address: http://europa.eu.int/eur-lex/en/lif/reg/en_register_121020.html

Draft directive published in May 2001, consultation period finished 26 October 2001. The directive was passed on December 16, 2002. To be implemented by 4 January 2006.

A major document presenting the Commission's legislation on the standards that new buildings, and those buildings undergoing major refurbishment, must reach.

The importance of this document cannot be overstated, and it is recommended that all estates staff with responsibility for areas that impact on energy consumption, are made aware of it.

Main elements are:

- **Establishing a common methodology for calculating the integrated energy performance of buildings.** Most HE institutions will probably have to input data for their entire estate into a common format, so that any physical changes proposed to any building on that estate can be run through the model/procedure to ensure that the most efficient and low energy option is chosen, and that indeed the changes desired cannot be achieved some other way. Education buildings are identified as a separate category. Institutions will have to show that they have considered passive solar design, renewable energy systems, combined heat and power and district heating schemes within options analysis.

Comment The 'teeth' to this element will be dependent on the minimum acceptable methodology that can be employed, so it is too soon to know what effect this might have on the procurement and running of existing buildings.

- **Setting of energy performance requirements.** Article 4 of the new directive requires that:

'Member-states shall take the necessary measures to ensure that minimum energy performance requirements for buildings are set, based on the methodology referred to in Article 3. When setting requirements, Member-states may differentiate between new and existing buildings and different categories of buildings.'

Comment For the HE sector, this should involve the sector actively establishing its own benchmarks for differing types of building and end-uses. Otherwise the worst-case scenario might involve inappropriate benchmarks being set by external bodies.

- **Minimum standards for the energy performance of new buildings and minimum standards for the renovation of existing buildings.** This is similar to the changes that came into force on 1 April 2002 – update to UK Approved Document Part L. Essentially, as well as applying to new buildings, any major works to an existing building over 1000m² will be required to meet the new directive. The requirements are:

'Major renovations of existing buildings above a certain size should be regarded as an opportunity to take cost effective measures to enhance energy performance. Major renovations are cases such as those where the total cost of the renovation related to the building shell and/or energy installations such as heating, hot water supply, air-conditioning, ventilation and lighting is higher than 25% of the value of the building, excluding the value of the land upon which the building is situated, or those where more than 25% of the building shell undergoes renovation.'

Comment This sounds fairly easy to avoid, but is an indication of the way things are heading.

- **The issuing of energy performance certificates for public buildings.** It is unclear if an institution or university is a public building, but probably is in the context of the following:

'Public authority buildings and buildings frequently visited by the public should set an example by taking environmental and energy considerations into account and therefore should be subject to energy certification on a regular basis. The dissemination to the public of this information on energy performance should be enhanced by clearly displaying these energy certificates. Moreover, the displaying of officially recommended indoor temperatures, together with the actual measured temperature, should discourage the misuse of heating, air-conditioning and ventilation systems. This should contribute to avoiding unnecessary use of energy and to safeguarding comfortable indoor climatic conditions (thermal comfort) in relation to the outside temperature.'

Comment Again, it is unclear whether this will have much impact, unless the energy certificate states very clearly that a building is performing well or poorly. This might then provide some pressure on institutions by their staff and students.

- **Regular inspection of boilers and air-conditioning (A/C) systems.** Part of this inspection for efficiency will consist of recommendations for either doing away with the system altogether (for example, shading instead of A/C systems), or changing to a more efficient method such as a district heating scheme.

Comment Problems over definitions, for example ‘competent persons’, are likely to mean this provision takes a while to mature into a threat, if it ever does. However, if it does prove to have teeth, then the potential cost implications for institutions could be very large.

b. UK Government’s White Paper (Cm 5761): Our energy future – creating a low carbon economy (February 2003)

Document available at: www.dti.gov.uk/publications/whitepapers.htm

This whole document is the first time that energy has been put at the heart of the UK Government’s policy. Its main point is probably best encapsulated in the following statement:

‘We therefore accept the Royal Commission on Environmental Pollution’s (RCEP’s) recommendation that the UK should put itself on a path towards a reduction in carbon dioxide emissions of some 60% from current levels by about 2050.’

Comment There is a lot of wishful thinking in the document, with few hard policies as yet. However, the intention has been clearly stated – the status quo of energy consumption patterns is not an option. To achieve a reduction from current levels of 60% will require a seismic change in attitudes, but is achievable within current technology, and at no great additional cost in a well-designed building. The year 2050 is not a long way away, and gas and oil are not forecast to last until then. So how will you keep your institution operational? A low-energy consuming design will certainly be useful, but what about the institution’s existing buildings? A long-term investment and procurement strategy will help prevent ‘short-termism’, which potentially could blight the long-term prospects of many universities and colleges.

c. New Part L of the Building Regulations – effective 1 April 2001

The new Parts L1 and L2 of the Building Regulations can be downloaded in pdf format from: www.safety.odpm.gov.uk/bregs/building.htm

The statutory requirements of the new guidance are:

Buildings or parts of buildings other than dwellings:

L2. Reasonable provision shall be made for the conservation of fuel and power in buildings or parts of buildings other than dwellings by:

- a. Limiting the heat losses and gains through the fabric of the building.
- b. Limiting the heat loss:
 - i. from hot water pipes and hot air ducts used for space heating;
 - ii. from hot water vessels and hot water service pipes.
- c. Providing space heating and hot water systems which are energy-efficient.
- d. Limiting exposure to solar overheating.**
- e. Making provision where air conditioning and mechanical ventilation systems are installed, so that no more energy needs to be used than is reasonable in the circumstances.**
- f. Limiting the heat gains by chilled water and refrigerant vessels and pipes and air ducts that serve air conditioning systems.**
- g. Providing lighting systems which are energy-efficient.

h. Providing sufficient information with the relevant services so that the building can be operated and maintained in such a manner as to use no more energy than is reasonable in the circumstances.

Requirements L2e and f apply only within buildings and parts of buildings where more than 200m² of floor area is to be served by air conditioning or mechanical ventilation systems.

Requirement L2g applies only within buildings and parts of buildings where more than 100m² of floor area is to be served by artificial lighting.

Comment The parts highlighted in bold are the main areas that have changed since the last regulations. The onus seems to be on the HE sector to show how we have met these requirements.

There is also a requirement for sub-metering of major building services and occupancy energy consumption – though the current Building Regulations cannot demand that they are read at present (though see ‘a. EC Directive on the energy performance of buildings’ – requirements for energy certificates and regular performance checks on boilers and A/C systems). It seems that it is only a matter of time until these meters must be read and recorded. Therefore, institutions may as well specify efficient services now, that will provide a comfortable return, save money now and in the future from reduced consumption, and not having to replace it prematurely.

d. UK Government’s Sustainable Development Commission

Web address: www.sd-commission.gov.uk/index.htm

This independent advisory body was established in October 2000. It reports directly to the Prime Minister and the heads of the devolved governments and assemblies.

In its own words:

‘Our mission is to inspire sustainable development in government, the economy and society. Our task, given by government, is to advocate sustainable development across all sectors in the UK, review progress towards it and build consensus on the actions needed if further progress is to be achieved. Established in October 2000, we report jointly to Tony Blair and the leaders of the devolved administrations in Wales, Scotland and Northern Ireland.

The UK Government has set out four objectives which, if achieved at the same time, would deliver sustainable development in the UK:

- *Social progress which meets the needs of everyone.*
- *Effective protection of the environment.*
- *Prudent use of natural resources.*
- *Maintenance of high and stable levels of economic growth and employment.*

Our strategic objectives are:

- To advocate a compelling vision of a sustainable economy and society.
- To review how far sustainable development is being achieved in the UK across all sectors.
- To identify the opportunities for, and obstacles to, step changes for sustainability by government, business and the media.
- To promote mechanisms that will deliver a sustainable society.
- To advance innovative approaches to policy-making and encourage wider participation.
- To mainstream the principles and practices of sustainable development and to support and encourage leadership and best practice in all sectors of society.'

Comment The likely direct impact of this body on the HE sector is nebulous at present, and can probably be ignored for now. Any recommendations that do come out of it are likely to end up being fed into the legislative system through more established routes such as the Building Regulations. However, the UK environment ministry has released a study evaluating different ways of measuring resource efficiency. Completed last year, the analysis fed into a report from the Prime Minister's office in November 2001. This recommended a major effort to improve resource productivity, but questioned the value of existing overall measures such as Factor 4 and ecological footprinting. Resource efficiency is a growing political priority across Europe, stoking increasing debate in how to measure progress. The report can be seen at:
www.defra.gov.uk/environment/sustainable/research/prosperity/pdf/sustainable_prosperity.pdf

Not an immediate concern, but again an indication of long-term postures being adopted.

e. UK Government: DTI and sustainable construction

Web address: www.dti.gov.uk/construction/sustain/index.htm

Following consultation with the industry, the Government published '*Building a better quality of life – a strategy for more sustainable construction*' in April 2000.

Sustainability is also the key theme of the DTI's construction research and innovation programme. For more details see '*Research innovation and best practice*'.

The Minister for Energy and Industry launched in October 2001 a report reviewing progress in achieving more sustainability construction: '*Building a Better Quality of Life – A Strategy for More Sustainable Construction: Report on Progress 2001.*'

Comment Again, this is in its early stages of formulating policy and from a purely compliance viewpoint can be discounted for a while.

However, with both this initiative and the previous one, as well as the links to EU initiatives in this area, it is clear that the HE sector will have to start giving serious thought to establishing a general energy and environmental strategy that encompasses not only operational issues, but also procurement and disposal of buildings and materials during the course of its operations.

f. Market transformation programmes

Web address: www.mtprog.com/Feature1.aspx

These initiatives are aimed at altering the way in which various markets operate so that energy and environmental issues are moved to the fore. I am currently involved with the air conditioning market transformation programme.

In its own words, the purpose of the Market Transformation Programme (MTP) is to:

'...support a structured, public domain sector review process. This is conducted in partnership with business, consumers, experts and other bodies to discuss market projections and policy scenarios that will help to bring forward products, systems and services which do less harm to the environment and use less energy, water and other resources. The MTP website aims to encourage public awareness and scrutiny of current policy thinking, promoting openness, transparency and joined-up government.'

The programmes cover domestic and non-domestic products. Currently, the non-domestic product programmes are:

- commercial refrigeration – air conditioning and refrigeration
- electric motors (including variable speed drives)
- variable speed drives
- commercial lighting
- office equipment.

The key objectives of MTP are to provide:

- a market transformation rationale and structured environment for identifying the key issues that determine resource efficiency, for constructing robust policy solutions and for monitoring the outcome
- a reference knowledge base of reliable information, current analysis and working assumptions
- up to date briefing notes on key issues and current developments
- an informed consensus on the potential for change, the policy options and the priority actions.
- accessible, public information on policy direction and likely outcomes via www.mtprog.com
- support for specific policy initiatives and for wider policy programmes.

A key feature of the programme is the clear illustration of current thinking and likely outcomes by the use of market projections and policy scenarios. This helps to 'reality test' the explicit market transformation policy rationales against consumer expectations and industry's own business plans. The main deliverable and focus for the sector review is a revised Policy Brief – a clear statement of the issues, priorities and actions needed to deliver quantified improvements in resource efficiency over time. The Policy Brief is a public domain document and is intended to be referred to in policy discussions and in support of government decisions.

Current versions of policy briefs for domestic and non-domestic products are available at www.mtprog.com/PolicyBriefs.aspx and briefing notes at www.mtprog.com/BriefingNotes.aspx

MTP's current focus is on improving the delivered energy performance of domestic and non-domestic products, especially energy consuming appliances, equipment and components. We have established sector reviews in 10 major sectors, covering 27 product types, representing 75% of UK electricity consumption. These include all major domestic energy consuming appliances (lighting, heating, cold, wet, cooking and consumer electronics) and traded goods in the commercial sector (office equipment, motors and drives, lighting and commercial refrigeration).

The programme now incorporates DEFRA's work in support of Ecolabelling and we have recently opened a new programme to look at household water consumption.

UKEPIC (www.ukepic.com) is a new initiative to provide access to reliable public domain product information and will support a variety of key policy measures such as labelling, buyers' guides, standards and green procurement. DEFRA is exploring the scope for dealing more generally with broader environmental and integrated product policy issues under this programme.

Comment What this means is that a lot more energy labelling information is going to be made available, and that this will be expected to be used in support of the requirements of Part L of the Building Regulations and the EC directive noted earlier.

Conclusion

From the above, and given current, and likely medium-term, interest rates it would seem pointless leaving money in the bank when, from a financial viewpoint, more significant returns can be made by investing in proven energy efficiency measures.

If we now couple this financial fact with increasingly stringent regulations and requirements due just around the corner, then it seems like madness not to be whole-heartedly embracing environmental concerns within the higher education sector. This is before the moral and environmental issues are even considered.

A further point concerns the design of new building and refurbishment schemes. Universities are unlike commercial concerns in that they can rarely move to an area or set of buildings that provide cheaper labour and running costs. They are identified with an area and, sometimes, with a set of buildings. It would therefore seem eminently sensible to be procuring new buildings that have 'presence' – low running costs, flexibility and longevity 'built-in' to their design – even if that might mean slightly increased 'up front' costs. Over the time periods that universities should be intending to operate, the increased difference in cost between a good, landmark building and a stock solution is practically insignificant. In fact, the more expensive building is probably the cheaper investment as it can be marketed internationally as part of the attraction of the establishment.

As far as refurbishing buildings is concerned then again the emphasis should be on maximising the potential of the existing building within reasonable financial guidelines. For example, fabric improvement measures should be made as energy efficient as possible as they are likely to be around for the life of the building, whereas lighting refurbishment measures should return their investment and some savings within the average lifespan of the system.

Most financial and estates directors are under huge pressure to reduce costs in their establishments, and therefore the drive towards putting environmental issues at the heart of the decision-making process alongside financial concerns, must be embraced by each university. No one individual can, or should, carry the burden of continually justifying such an 'invisible returns' policy, despite that policy being vital to the long-term stability and viability of the institution. Jobs have been lost over less, and it

is a fact that people think in terms of their own immediate needs, and a quick saving here or there might help a promotion case, while the long-term damage to the institution's health will not be seen for some years.

An ability to think ahead and plan for the long-term is what society would expect of the HE sector, and it also makes financial sense if a longer-term view is adopted.