

---

# Beyond DECs



Chris Moon  
*Director of Energy &  
Sustainability Consultancy,  
Hurleypalmerflatt,  
Multi-disciplinary Engineering  
Consultancy*

*Tel: 020 7535 3100*

*E-mail: [chris.moon@hurleypalmerflatt.com](mailto:chris.moon@hurleypalmerflatt.com)*

---

As part of the European Union's efforts to tackle CO2 emissions, display energy certificates (DECs) are being introduced in some 18,000 public buildings in the UK, including libraries, schools, town halls, museums and job centres. Launched in October this year, they display the energy usage of a building, calculated from gas, electricity and other meters, and communicate overall consumption using a rating from A to G. They are intended to encourage occupiers of poorly performing buildings to take positive action.

It is worth mentioning that some public-sector building performance will be restricted. Energy consumption is influenced by the nature of the building, and older buildings, for example, are much more likely to have lower scores. The British Library, the Parliamentary Estate and the Bank of England have all scored the lowest, 'G', rating. However, occupiers of older premises can still raise their score by improving cooling and heating systems and by simple measures such as switching off lights and computers at night.

No matter what the constraints, the government says that it is vital that the public sector leads the way in reducing carbon emissions and shows how efficiently it manages energy consumption. If display energy certificates are successful, there is every possibility that the initiative will be extended to the private sector.

So how can library occupiers improve their performance? The law does not require occupiers to make changes and strive for a better rating – it only asks that you have and display the DEC on your library wall. However, every DEC must be accompanied by an advisory report, which lists ways in which the energy rating of the building can be improved. This report should be taken seriously and reasonable steps taken to put its advice into action.

## BEHAVIOURAL CHANGE

The first and most cost-effective step to success is to get staff and visitors on board. The energy they use individually and as a group must become front-of-mind and this means raising awareness, not just sticking the DEC on the wall and disseminating the information on paper. You effectively need to change preconceived ideas and habits that have been ingrained over time. This means that you have to truly engage people to make real and lasting improvements to behaviour.

I use the analogy of rearranging deck chairs on an ocean liner. You can move the deck chairs around as much as you like, but it will not influence the speed and direction of the boat or alter the behaviour of crew and passengers. A boat is only as good as its crew and captain – it needs leadership as well as shared responsibility. Similarly, a building is only as good as its occupiers and users.

Those in charge of libraries must take the lead. They need to communicate that energy efficiency is as much about human behaviour as it is about the age and physical operation of the building, so that staff and visitors recognise and embrace their personal responsibility for using the building in an energy-efficient way. They need to understand the rating and what action they can take to improve it, and therefore what is expected of them.

Critical to getting everyone on board is the way energy data is communicated and displayed. Energy management doesn't have to be dry and dusty and to focus solely on the technical challenges of metering and monitoring of consumption. In fact, quite the opposite – it can be brought to life so people want to participate. One excellent and visually compelling method is the use of real-time information from meters displayed on LCDs (liquid crystal displays) in the reception area or other work areas. Other cost-effective ways include the use of graphics and visuals that grab attention.

To maintain momentum, give library staff responsibility and appoint 'energy champions' who can spread the word, encourage and enthuse. If the library building is shared with other occupiers, create an 'energy' or 'green team' to share ideas and information, get new initiatives under way and overcome any practical challenges. Most importantly, to ensure efforts don't dwindle, keep everyone updated with reports that capture data, highlight energy-consumption patterns and show

how well the library is performing against targets and benchmarks.

## OPERATIONAL CHANGE

Alongside improvements that are brought about by behavioural change, there are plenty of practical options that can deliver operational efficiencies. The solutions chosen must be suitable for the building and the way it operates, and advice should be taken to determine the best for each library.

To get above a 'C' rating can require significant capital expenditure but there are also plenty of inexpensive methods on offer. Here are some ideas:

- Install low U-value double-glazed glass to prevent heat loss. Double-glazing typically halves the heat loss experienced with single glazing. A ten-metre section of single glazing loses 700W of energy during the winter, dropping to about 350W with double glazing.
- Consider replacing lights. High-efficiency fluorescent lights, energy-efficient lamps and high-performance lighting ballasts reduce energy consumption. Extended-performance fluorescent lights, also available in long-life, cost £2 and use less energy than £2.50 tungsten halogen flood beam or incandescent lamps. Compact fluorescent lights use 50–80% of the energy of incandescent lights. A 22W compact fluorescent light has the same output as a 100W incandescent light, equivalent to a saving of approximately £78 per lamp (over its lifetime) in terms of energy use.
- Incorporate intelligent lighting controls. Through the use of occupancy sensors and daylight sensors, artificial lighting can automatically adjust to provide light only when the space is occupied and there is insufficient natural light.
- Install occupancy sensors in washrooms, which cost £17.70 per lighting circuit.
- Consider combined heat and power (CHP) plant, which generates electricity and utilises the heat by-product. It therefore achieves an overall efficiency of fuel use of 75%, compared to 50% with conventional electricity generation.
- Upgrade the building management system, to include optimised starts and stops, active modulation of fans and pumps via variable speed drives and outside air temperature

lockout to turn off central plant when external conditions are favourable.

- Optimise natural ventilation to lessen the cooling requirements, while also creating a better environment.
- Shut windows at night in winter and save 15g of CO<sub>2</sub> and £2 per office per night.
- Turn the thermostat down by 1°C and cut heating bills by 10%.
- Use rainwater or recycled water, low-flush systems and leak-detection systems. A cistern water-saving device costs £20.
- Tankless hot water heaters are 98.5% energy-efficient and save up to 50% on water-heating costs.
- Use recycled materials and recycle the waste generated by the day-to-day operation of the library.

Switch off machines at night.

All of these recommendations – and there are plenty more – reduce your energy consumption and therefore they also reduce your energy bills. They must be seen as an investment and assessed on their payback over time. The operational performance of a building requires taking a long-term view.

#### **A CASE STUDY: A UNIVERSITY LIBRARY**

We have recently completed a DEC for a university library, which had scored a 'D' rating. The library, which was originally built in the first decade of the twentieth century, had recently been renovated to include a café and reading areas. The mixture of the old infrastructure and new technology meant the building registered at a 'D' grade, or what is classed as typical practice. While the occupiers were happy with this grade, during our survey we discovered that the energy consumption could be reduced by a further 25%, which would give the library a 'B' rating.

The operation of the new technology had been left unchecked, with the heating, ventilation and lighting systems all running longer than required. In addition, due to budget constraints, the more energy-efficient versions of building services plant were cost-prohibitive so lower initial cost options were installed, resulting in considerably higher running costs. The project is expected to pay back in less than four years. Emphasis has been placed on operational efficiencies and encouraging behavioural change.

#### **A FINAL WORD**

As a 'public' facility, corporate social responsibility is high on the agenda of any library, and engaging people and reinforcing green credentials is no bad thing. If, at the same time, you can engage with staff and members of your user community for the greater good, while reducing your energy costs, why wouldn't you do it?