

Lighting

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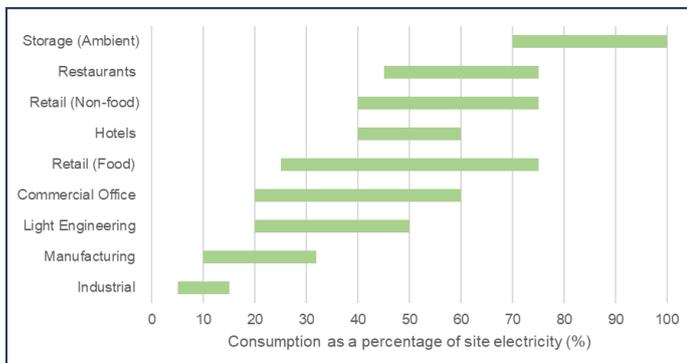
Mayor's Business Climate Challenge

Introduction

Lighting accounts for 20-70% of electricity use in businesses and therefore offers a good opportunity to save energy and money. The opportunities are simple and can deliver predictable energy, cost, and carbon savings.

Tip

Check out [HSG38](#) from Health & Safety Executive for details on safe and optimal lighting levels.



Typical range of lighting consumption, as a percentage of site electricity, by sector ([Carbon Trust, 2017](#)).

Managing lighting

Turn lights off when not in use to reduce energy costs and greenhouse gas emissions. Improved lighting control can save around 30-50% energy in an average office building (details [here](#)).

Manually switch off lights

This is a no-cost measure which works best in small businesses where accountability can easily be assigned. In larger workplaces, this approach will have varying levels of success as it relies on employees being motivated to switch off lights. Key ways to engage staff to take ownership of this task are:

Making the most of natural lighting

Reduce the need for lighting by maximising use of natural daylight, especially in summer when daylight hours are extended.

- clean windows and light fixtures regularly to maximise light output
- relocate objects near windows that may block natural light
- use light coloured/reflective paint to brighten rooms
- wire lighting near windows in parallel and put these on a photo sensor so they are switched off or dimmed when not needed on brighter days.

- engage employees to develop their own ideas for reducing energy and introduce 'champions' to demonstrate and encourage switch off.
- assign switching off to a list of tasks for the end of the day.
- add signage to remind employees to switch lights off.

Technology

There are lots of proven technological solutions to make sure lighting is only on when required. Installing these measures can help save energy while taking the onus off staff and other building users. [Understanding lighting technology](#)

Building Management System (BMS)

A BMS provides data to analyse efficiencies and performance, and can be used to optimise controls and maintenance to be more efficient. It is found in larger and more complex buildings and is used to control multiple aspects such as heating, ventilation, security systems and lighting.

Timers

This is a relatively low-cost measure which could be a timer on a socket, a timer switch or linked to a BMS. This is best for spaces with predictable lighting needs e.g. decorative light fittings used during the day but not needed at night when the space is empty, or in bathrooms or cupboards where the occupancy duration is predictable.

Photo sensor

This sensor allows a space/room with large windows to make best use of natural lighting, and can be coupled with PIR sensors. These sense natural light levels and adjust the output of each light fitting accordingly to illuminate appropriately.

Motion sensors (occupancy sensor)

These sensors are known as 'passive infra-red' (PIR) sensors and work by sensing objects moving and electronically switching on the lights. However, they often don't have their own switch and can therefore be inefficient in places with a lot of natural lighting. This is best used in spaces where occupancy is unpredictable and there is no opportunity to assign responsibility e.g. open plan offices, corridors, meeting rooms.

Swap to more efficient lighting

In *most* cases, light fittings or lamps can be replaced by LED equivalents saving up to 80% of energy use. There are LED equivalents for office, retail (product), stage, warehouse and outdoor lighting. Replacing bulbs with LED equivalents can also reduce demand for cooling as they do not emit heat and have long lifespans that will reduce maintenance costs.

You should consult a knowledgeable supplier and contractor who both understand the specific lighting needs for your company in terms of brightness or **lux levels** (*lux: a unit of illuminance per unit area*) needed in different contexts (e.g. for a technician or in a warehouse), colour temperature to create ambiance (e.g. in retail or hospitality spaces) or view true colours (e.g. in a car spray shop or at a hairdresser), or to be able to create lighting effects (e.g. in cultural venues and theatres).

Emergency lighting

Emergency lighting is a legal requirement for most buildings. Details of emergency lighting systems can be found in [SLL Lighting Guide 12: Emergency lighting \(2022\)](#)

Emergency lighting should be incorporated with the existing lighting system in a normal/main lighting failure scenario for the safety of the working employees. When looking to upgrade your lighting to LED, ensure that emergency lighting is considered and designed as part of the upgrade solution.

For more tips on lighting, refer to the Chartered Institute of Building Services Engineers ([CIBSE](#)).

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Reduce
energy
bills



Cut
carbon
emissions

Further guides can be found [here](#).