

Lighting

The low-energy bulb revolution

Energy-saving light bulbs use up to 90% less electricity than the old bulbs but produce the same amount of light. And they last over 10 times longer.

All light bulbs in the UK are required to meet new energy efficiency standards.

Energy saving bulbs come in a range of shapes, sizes and brightness. There are energy saving bulbs for every type of fitting, including dimmable. What's more, you can now choose to have a variety of colours of light to suit your taste.

There have been three generations of low-energy light bulbs: halogen bulbs, compact fluorescent light bulbs (CFLs) and light emitting diodes (LEDs). Each produce more light for every unit of electricity than their predecessor and each generation lasts for longer too.

Halogen bulbs

Halogens are more efficient than old-style incandescent bulbs, however they are still high useage, and an EU ban means they are being phased out. Homes will still have existing halogen bulbs, and so it's worth being aware that rooms lit by halogens usually have lots of fittings (e.g. kitchens) which increases the overall cost.

How do they compare?			
	LED	CFL	Halogen
Watts	6W	11W	35W
Average purchase price	£6.00	£3.50	£2.00
Typical lifetime*	30 yrs	10 yrs	2 yrs
Yearly purchase cost (over 30 yrs)	20p	35p	£1.00
Running cost per year**	£0.84	£1.55	£4.92

* Of 1,000 hrs per year

** 14.05p/kW



Photo: bulbs, Energy Saving Trust, light fixture, Paul Groom

CFLs

Compact fluorescent light bulbs are often what people think of as a low energy bulb. They often look like tubes shaped into a helix or a series of loops, though it is possible to get CFLs in a range of traditional bulb shapes. Early examples were criticised for poor light quality and for the length of time it took to get up to full brightness. Nowadays CFLs are much improved but have increasingly become a second best option to LEDs.

LEDs

Light emitting diodes, usually referred to as LEDs, are the most efficient bulbs available. They achieve full brightness instantly, are available in almost all fittings and styles, are dimmable, and come in a wide range of colours, including hues close to traditional incandescent bulbs. LEDs are more expensive (although you can find them cheaper than the average £6 listed in our table, especially if you buy multi-packs) but their extremely low energy consumption means that they are likely to save between £45 and £75 over 10 years. In some fittings, they use a tenth of the electricity of the equivalent halogen bulbs.



A typical light fitting where replacing the halogen bulbs with LEDs will significantly reduce costs.



See all our energy advice leaflets at www.cse.org.uk/advice-leaflets

Smart Bulbs

These are LED bulbs which connect to the Wifi or Bluetooth system within the home. They allow you to turn your lights on and off via a remote, your phone, your tablet or your voice controlled home assistance system. They also enable you to set timers for your lighting to come on and off. There is not much evidence that having this control saves you money, but they can be very useful for people with mobility issues or for those who have concerns around home security.

Picking the right bulb

The choice available when buying new lightbulbs can be dizzying. Here's a few steps to help you buy the right bulb:

1. Know the fitting and bulb shape

Bulbs come in a wide variety of fittings, such as screws, bayonets or pins. The easiest option is to take the old bulb shopping with you, and compare it to the options available. You can also compare when shopping online, but be aware some fittings look the same but come in different sizes.



Bulb fittings

- 1 Bayonet (small)
- 2 Bayonet (large)
- 3 Edison screw cap (small)
- 4 Edison screw cap (large)
- 5 G4 capsule
- 6 G9 capsule
- 7 GU10 spot
- 8 GU5 spot
- 9 Tube

The shape of the bulb will affect how the light is distributed. Bulbs with a more traditional or candle shape offer an evenly distributed, diffuse light. Spotlights provide a more focussed light. You do not have to replace bulbs with one of the same shape; any bulb with the same fitting will work.



Bulb Shapes

- 1 Traditional
- 2 Candle
- 3 Spot
- 4 Golf
- 5 Downlight
- 6 Globe
- 7 Stick
- 8 Spiral

2. How bright do you want it?

Traditionally we refer to brightness of bulbs by how many watts it uses, and we tend to know how bright a 60W or 100W bulb is. However, low energy lightbulbs will use

Lumens v Watts				
Lumens	Old-style	Halogen	CFL	LED
1600	100W	70W	25W	16W
800	60W	42W	14W	8W
450	40W	28W	9W	5W

Tables: Energy Saving Trust

less power to deliver the same brightness. Packaging will often list '60W equivalent', but is not always a reliable comparison. For complete accuracy, look at the 'lumens', which is a measurement of how much light is produced. See our table for a comparison of Watts to lumens.

3. What colour?

One advantage of LED technology is the ability to produce a range of colours, which are measured in Kelvin (K). It is possible to buy LED's that range from very warm (1,800K), with a strong orange look, to cool daylight (7000k), which has a stark bluey appearance. Warm white (2700k) is the most popular option and gives a similar light to an incandescent bulb. Cool white (4000K) provides quite a bright light which is often popular in kitchens and bathrooms, giving a modern look.

Turn them off!

Finally, if you're worried about your electricity bill, one of the best things you can do is keep an eye on your household's use of lighting. Are lights switched off when they're not needed? Do you need lights left on in hallways or landings? It is particularly important to use low-energy bulbs in places where you really do need to have the light on for long periods.



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The Centre for Sustainable Energy is a national charity that helps people change the way they think and act on energy.

Our Home Energy Team offers free advice on domestic energy use to householders in Bristol, Somerset, Wiltshire, South Gloucestershire and Dorset.

