

## SAVING MONEY AND ENERGY ON SPOTLIGHTS

If you have halogen spotlights, there's a good chance you could make savings by switching to Light Emitting Diodes (LEDs).

**Halogen spotlights** typically :  
50 watt or 35 watt

**LED spotlights** typically :  
between 3 and 5 watts

Estimating electricity consumption, insert the correct values in the following sum or in a spreadsheet. (No of bulbs x wattage of each bulb x hours switched on) / 1000 to convert to kilowatt hours)

- 6 LED bulbs x 5 watts x 3 hours / 1000 = 0.09 kWh
- 6 halogen bulbs x 50 watts x 3 hours / 1000 = 0.9 kWh

So, over a year, the difference between 6 x 50 watt halogens and 6 x 5 watt LEDs (*say 3 hours a day*) is approximately 330 kWh compared with 33 kWh for LEDs. At 12p per unit this would be a saving of £36. Some households have a lot more than 6 spotlights.

So, although LEDs are more expensive, they last very much longer and you could find that you save the replacement cost within one or two years. The saving to the environment starts immediately.

**Switching to LEDs** - This can be complicated in some cases but sometimes it's simple.

**Voltage** - Check the voltage marked on the halogen bulbs. Are they 220-240 volts (i.e. regular mains voltage), or are they a lower voltage? In the latter case, a transformer is being used which may not be suitable for LEDs. You will need to check with a qualified electrician in this case.

**Fittings** - there's a wide range of fittings:

- GU10 - If the halogens are on mains voltage, it could be as simple as taking out the old bulb and plugging in a new LED bulb.
- MR11 - it may be necessary to install a new LED driver to replace the transformer that powers the existing halogen bulb.



Images of a fuller range of fittings - [www.simplyled.co.uk/LED-Fittings\\_A1329I.aspx](http://www.simplyled.co.uk/LED-Fittings_A1329I.aspx)

**Colour** - Sometimes described as colour temperature

Some early LEDs tended to be rather blue. Colour is a matter of personal taste but there's more choice now. Warm White and Cool White or Daylight White are now popular. Warm White has less blue light and is designed to be similar to traditional incandescent bulbs. Cool White / Daylight White bulbs usually appear to be brighter. Some people describe them as being colder than Warm White.

Colour is often described on packaging in terms of colour temperature codes such as 2700K (Warm White), 4100-5000K (Cool White) and 6500K (Daylight).

More information about colours - [www.simplyled.co.uk/Warm-White-or-Cool-White\\_ASPF0.aspx](http://www.simplyled.co.uk/Warm-White-or-Cool-White_ASPF0.aspx)

**Lumens** - This is a measure of the total amount of light emitted by a bulb. It's difficult to be precise about the equivalence of halogen and LED lumen ratings but we think that any LED giving 240 lumens or more will probably be OK for domestic use. Comparing the lumen rating of GU10 halogen bulbs suggests that they range from 300 to 600 lumens. It is agreed that LEDs seem to be brighter than halogens of the same lumen output (because they are more directional) which probably explains why a 240 lumen LED that we tried looked quite bright enough to replace existing halogens.

**Cost and where to buy** - LEDs are sold by a wide range of high street and online retailers. If buying online, a search for LEDs brings back a range of websites, e.g. [www.simplyled.co.uk/](http://www.simplyled.co.uk/) and [www.clasohlson.com/uk/b/electrical/light-bulbs/LEDs](http://www.clasohlson.com/uk/b/electrical/light-bulbs/LEDs) \*\*

**Further information**

- Energy Saving Trust tips on energy efficient lighting - <http://www.energysavingtrust.org.uk/Electricals/Lighting>

\* Boiling a full electric kettle = approximately 0.2 kWh.

\*\* The authors can't give specific recommendations about suppliers or products.