LOW ENERGY LIGHTING

4

How much electricity do lights use?

The amount of electricity that any light uses, irrespective of it's type, is it's "Watts" rating - abbreviated to "W". Ordinary light bulbs are available in 25W, 40W, 60W, 100W and 150W etc. A 150W bulb uses 2½ times as much electricity as a 60W bulb.

How efficient are light bulbs?

The whole idea of a light bulb is to produce *light*.
Ordinary light bulbs are not very efficient at doing this, and just about all the electricity becomes heat (a 60W bulb produces nearly 60 Watts of heat).
The measure of a light's efficiency is how much *light* you get for the amount of *electricity* it uses, and some types of light are much better at doing this than others - that's where "low energy lighting" comes in. A typical 11W low energy light bulb will produce as much light as a 60W ordinary light bulb - you get the same amount of light, but using only about one-fifth the amount of electricity. Another way of saying this is that low energy light bulbs are 5 times more efficient than ordinary light bulbs.

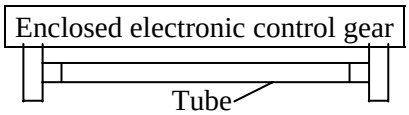
What is NOT low energy lighting?

Ordinary light bulbs are not low energy, whatever shape, size and form they come in. Other types of bulb that work the same way (with a filament wire that heats up) which are often found in strip lights such as shaver lights. [Don't confuse these with *fluorescent* lights, which work in a completely different way and *are* low energy - see below]
Also in the "not low energy" category comes the Tungsten-Halogen, low voltage lights which are often sold in the form of miniature spotlights for use by themselves or with ceiling tracks. They may be very small and bright but they are **not** in the low energy category. If you check their Watts ratings you will find that they are much the same as ordinary bulbs. They are not low energy - they are merely low voltage - and you won't save any electricity by using them.

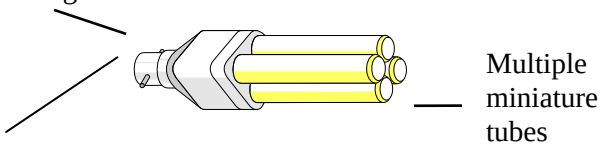
So what ARE low energy light bulbs?

All low energy light bulbs intended for use in homes, like miniaturised versions of fluorescent strip lights which many people have been using in their kitchens, utility rooms and garages etc. for many years. For this reason they are often referred to as
"Compact Fluorescent Lights - "CFL's".
Fluorescent lights are always low energy for the amount of light they produce (just compare how much light you get from a 25W fluorescent strip light compared to an ordinary 25W bulb).
Fluorescent lights and CFL's both need 2 main components in order to work: (1) a gas-filled tube, which generates the light, and (2) some electronic control gear, which regulates and powers the tube. *The diagrams below illustrate these components:*

A FLUORESCENT STRIP LIGHT



A SELF CONTAINED "CFL"



[There is also a plug-in type "CFL" where the miniaturised electronic control gear is provided separately and the "CFL" can just be plugged into the base, which is normally built into the light fitting]

These diagrams illustrate some of the most common types of CFL's you will come across, but there are many variations on similar themes - for example there are:

- CFL's with exposed tubes, like the examples above.
- CFL's with the tubes enclosed in a glass bowl (called a diffuser), like the smiling example at the top of this page
- CFL's with a single tube arranged in a large, flat arrangement about the size of this page - like 2 letter D's back-to-back (hence "2D type")

Which type of CFL is best for me?

Self-contained CFL's have the advantage that you can use them just about anywhere that you can use ordinary light bulbs - you simply replace an ordinary light bulb with a CFL, you don't need a special light fitting as the electronic control gear is built into the CFL itself. However, this makes them a little more expensive to buy than the plug in type whenever you need to replace them.

A plug in type CFL is cheaper to buy than a self-contained type because you only buy the tube part - the electronic control gear is separate and normally built into the light fitting. So when the tube eventually goes, you only buy the tube part itself (and not the electronic control gear that goes with it). However, this means that you cannot simply replace an ordinary light bulb with a plug-in type CFL - you need to have a special light fitting, which is purpose-made for use with a plug-in type CFL.
So, if you want to use just a few CFL's without the expense of replacing any light fittings, go for the self-contained type. But if you want to make bigger, longer-term savings, and you don't mind investing in some new light fittings (or if you are replacing some existing light fittings anyway), go for the plug-in type CFL's - they will be cheaper in the long run.

Do CFL's come in different brightness's?

Yes - Watts (W) rates CFL's just like ordinary light bulbs, and this is the amount of electricity they use. But because they are much more efficient at converting electricity into light, their Watts rating is much lower than ordinary bulbs *for the same amount of light produced*. The following table should come in handy when you buy a CFL. It gives approximate comparisons between ordinary light bulbs and CFL's based on equivalent levels of light output.

Ratings for equivalent light output

Ordinary light bulb	Energy-saving CFL
25W	5W
40W	7 - 10W
60W	11 - 15W
100W	20 - 25W
150W	32W

Where is it best to use them?

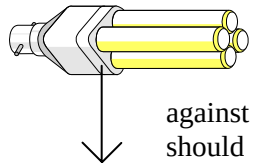
CFL's are more expensive to buy than ordinary light bulbs, but they last much longer before they need replacing, and use very little electricity. Even so, it is best to be a little selective where you use them.
You will save most by using them for lights which are switched on then left on for lengthy periods - for example in workrooms, living rooms, kitchens, bedrooms, landings, entrance halls and outside lights etc., and where lights are left on overnight.

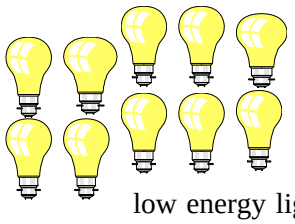
Where shouldn't I use them?

Most CFL's and fluorescent lights will not work with dimmer switches and certain types of microprocessor based switching devices (if in doubt, ask a qualified electrician first).
Just like fluorescent strip lights, CFL's take a second or so to "strike up" once you switch them on, and then a few moments to reach full brightness, so you shouldn't use them in situations where you need instant light or where you need full brightness immediately, for example, right at the top of dark stairs etc. For similar reasons, you shouldn't use them where they are likely to be frequently switching ON and OFF for short periods, for example where lights are switched by infrared detectors.
They are unlikely to pay for themselves in terms of their cost versus electricity savings if you use them in rooms where the lights are only used for a few minutes every now and then, for example in storage spaces and roof voids etc.

How much do they cost - how much could I save?

An ordinary light bulb is manufactured to last for about 1,000 hours of use (though they may go "pop" before then). Most low energy lights are rated for up to 10,000 hours of use (they will last up to ten times longer!) So when you are comparing costs you shouldn't compare just the cost of a CFL against one ordinary light bulb - you should compare it against the cost of buying TEN ordinary light bulbs to last the same amount of time.





Add to this the much lower electrical cost of running a low energy light over it's lifetime compared to that of running ordinary bulbs and you can end up with a significant savings in energy consumption and electricity costs.
The following table gives a comparison of total cost between a CFL and 10 ordinary light bulbs (to last the same amount of time). It is based on an electricity cost of 11 cents per kWh.

Comparison of total cost over lifetime (in euros)

1Nº 11W CFL			10Nº 60W light bulbs		
To buy	Elec.	Total	To buy	Elec.	Total
11.00	12.50	23.25	7.50	68.70	76.30

Potential savings 53.05 euros

save • agency

Arran place, Ballina, Co. Mayo.
Tel.: (096) 76113
Fax.: (096) 76199
E-Mail: mayoenergy@eircom.net
Web: mayoenergy.ie