Environmental Tip of the Month **May 2021 Andrew Hollett**

Part of the aim of the HPC Climate Change Sub-Committee is to reduce the energy consumption and carbon footprint of the parish. While we will talk about other energy sources in the future, this article deals with electrical consumption and specifically with low-energy lighting.

Until a few years ago, in most domestic lamps, the light source was a tungsten filament, enclosed in a glass *bulb* filled with either an inert gas or a vacuum. Mains voltage (230V) was passed through the filament which glowed white hot, producing the desired light. These are known as incandescent bulbs. Most of us still use the power consumption of these bulbs to describe how bright a light source is, 40-watt, 60-watt, 100-watt, etc. Fluorescent tubes, in various forms were and still are common, but it is now illegal, with a few exceptions, to sell incandescent bulbs in the UK. You can still buy a form of Incandescent lamp, known as a halogen bulb which is more efficient, but still produces a lot of useless heat that the consumer pays for.More recently, low energy fluorescent bulbs were introduced that fit directly into the standard UK bayonet light fitting.

However, we recommend that the best lamps to use are those that use Light Emitting Diodes, (LED's) as the light source. LED lights work on a completely different principle to both incandescent and fluorescent lights, they produce very little waste heat and importantly they cost less to run.LED lights on sale today will tell you the light output as a comparison to a traditional light, although the actual power consumption is much less. The light output of LED lights is also given in lumens, which is a measure of the actual light output, rather than of the power needed to produce it. As an example, a traditional 60W bulb produces about 800 lumens.

As a cost comparison, consider a conventional a Halogen 60W bulb replaced by a 6W LED bulb which gives the same amount of light. The average cost of electricity in the UK is 14.37 pence per KWh The conventional 60W bulb, on for one hour, would cost 8.622 pence to run, the LED equivalent (6W) would cost 0.8622 pence, a tenth of the price. In a domestic house or business, this would be a significant saving over a year.

Overall, the cost of LED lights is higher than conventional bulbs, but this, in our opinion, is outweighed by the longer life and much lower running costs.

Two things to remember, when buying LED lights, especially online, it is recommended that you stick with reputable manufacturers and that at the moment dimmable LED lights are still quite expensive. It is also worth noting that mains voltage models are more efficient and last longer than the low voltage type.

The village hall has recently had all its lights replaced by mains voltage LED battens of varying lengths. In the main hall there were 10 4ft fluorescent tubes, they have now been replaced by 8 4ft LED Battens which provide more light than the original 10. There have not been many users yet because of the lock-down, but most people find that they don't need to use all the lights. These battens, made by Samsung, are guaranteed for 5 years, but are rated to last a working life of 30,000 hours.

It is also worth saying that LED lamps come in different colour tones, Bright, Day Light, Warm, etc. You can even buy lamps for greenhouses that produce UV light of the right frequency for growing plants.

What of the future?

While LED's will probably be the main source of lighting for many years, there are already experiments with lasers, passing through fibre-optic lines to distribute light all around a building from possibly only one central source.