

LED STREET LIGHTS

I thought I'd find out a bit about the new street lights which have recently appeared all over Cheltenham. Sodium lamps such as these, have been replaced by these.

How times have changed. Street lighting in Cheltenham goes back to the early 1800s - gas of course. The Gordon lamp was erected to commemorate Gordon's death at Khartoum in 1885. In 1906 it was reported that "Mr J W Austin, Cheltenham lamplighter for 44 years, retired, having walked 224,840 miles lighting lamps in the town (excluding his other perambulations)." We still have some street lights that Mr Austin would recognise - e.g. the Gordon Lamp, This is not being replaced! Indeed this, and a fair number of other surviving Victorian lamp columns are "listed".

The LED lights in Cheltenham are part of Gloucestershire's £40 million project. That is replacing 55,000 street lights -nearly all of the total. The old ones are mainly Sodium.

It's happening all over England, and in other countries as well. It's cost-effective, and environmentally desirable. And it provides much more pleasant illumination.

The old street lights consume 20 gigawatt-hours of electricity every year and the electricity costs Gloucestershire £2 million a year and rising. The LED lighting will save a great deal of this. How? Well it's slightly more complicated than you might think.

Sodium street light bulbs actually have a pretty good luminous efficiency - some 100 lumens per watt. That's significantly better than our compact fluorescent bulbs. Today's LEDs are better still, say 150 lumens per watt. But that's not the whole story by far. The light output is directional, and they can easily be provided with tiny lenses, so that their light is far better directed. And the white light is more effective than the yellow from Sodium.

Most of our new lights are Urbis Axias. They can be populated with up to 48 LEDs in modules of 8. Our new lights will generally have 16 or 24 LEDs.

Every light in Cheltenham and Gloucester will have a wireless module. I don't know whether that also applies throughout rural areas. Our lights will be controlled by a central management system. So they don't have individual clocks. Options include dimming, so lights are not necessarily switched off completely at night. And one imagines that police and emergency services will be able to get a rapid response if more light is needed when an incident occurs.

So electricity consumption will be cut to one third. So there's well over £1M saved every year. There are vastly reduced ongoing maintenance costs. And since government subsidy provides a large incentive, it's obviously a no-brainer for the County Council, quite apart from the quality of the new lighting.

Dissent is hard to find. However Simon Nicholas is a one-man campaigner who's had a lot of publicity, supported of course by the Daily Mail. But he has at least challenged platitudes and successfully raised issues on various schemes throughout the UK. One issue which does cause legitimate concerns is the spectrum of the light. The production of 'white' light by LEDs uses two alternative technologies. Colour-mixed LEDs radiate a combination of red, green and blue. We perceive this as white, but it's not a continuous spectrum, and so colour-rendition may be imperfect. Phosphor-coated LEDs have a blue light source with a yellow phosphorescent coating, and the blue/yellow combination is perceived as white.

Then there's a choice of colour-temperature. (Confusing term!) The relevant range of colour temperatures for white light luminaires is from 2500K to 6500K. Daylight and cold-white fluorescent tubes are at the upper end, and warm-white at the lower end. Studies suggest that 3000K is best for quality of street lighting. It's better for humans, and better for wild life. But it costs more, since the luminous efficacy of today's LEDs, of both types, is lower at 3000K than at 5000K. That may change in the future. Gloucestershire has chosen 4000k after its own studies, which roughly matches moonlight on the scale. Some councils have chosen 5000K and face more justified criticism.

Cheltenham and Gloucester have been almost wholly converted and work is currently going on in Tewkesbury, with Stroud coming soon.