



# CLASP

Climate Change  
Local Area  
Support  
Programme

Putting Policy into Practice | Procurement Project

## Section 3: Good Practice Guides

### Lighting

#### What is the issue?

Lighting accounts for 19% of global electricity consumption. It would be technically feasible to save about 50% of this energy; if only 30% of the technical potential were realised, 260 million tons of CO<sub>2</sub> would not be emitted into the atmosphere. *Source: BIS*

Energy saving light bulbs can be a proven way to reduce bills and reduce consumption of raw materials, due to their longer life span.

It is thought that by 2018 solid state lighting will account for 32% of the global lighting market.

*Light-emitting diodes (LEDs) will eventually replace halogen and tungsten lamps and could replace many compact fluorescent lights (CFLs) - "UK's Low Carbon Transition Plan" of 15 July 2009 concluded, "central Government and the public sector must lead the way in reducing their own emissions using targeted financial support to support a series of demonstration sites across the public sector estate, in major public buildings...including accelerated deployment of ultra efficient solid state lighting."*

*Source: Furness Enterprise Partnership*

Benefits of solid state lighting include:

- Low energy consumption
- Long life and high lumen maintenance
- Vivid colours - millions of colours



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- Control - dimmable, instant-on, reactionary
- Compact and robust design
- Most content recyclable - no mercury
- No IR or UV radiation

Source: *Envirolink Northwest*

Energy control gear can also help substantially reduce energy consumption for lighting by making best use of available daylight, using artificial light only when necessary. Some energy control systems also use motion or 'presence' detectors to reduce wastage.

Solid state lighting can be used in a variety of applications ranging from street lighting to commercial building design; the North West has a particularly strong infrastructure in these technologies.

### Government Buying Standards

- Compact fluorescent and pin based light bulbs must have EU Energy Label Class A
- Light bulbs (double headed) must have the 'Long Life' EU Energy Label Class A
- Energy control gear for lighting standards must meet the criteria of the Government's Enhanced Capital Allowances scheme
- Energy control gear for lighting standards must only be switched on when needed, thereby minimising energy consumption, or must be regulated in terms of light output and energy consumption to take full advantage of daylight availability

### What else can I do?

- Use the lowest practical wattage of bulb in all fittings
- Lighting should be easily controlled, whether that is automatic or manual control
- Lighting design should include natural light and be tailored to your use of space
- Consider the design flexibility and sustainability afforded by LED-based systems

### Suggested wording for inclusion in tender documents

Envirolink Northwest recommends the following key points to consider when procuring LED lighting:

- Efficacy greater than 90 lm/W – cool white, 60-70 lm/W warm white for functional applications
- Managed & tested thermal engineering
- Independent photometric reports
- Scheme design compliance to CIBSE LG and BS/EN (levels, uniformity, glare, colour, etc.)
- Colour binning - 2-step MacAdam
- Safety conformity with BS/EN, CE mark, etc.
- Warranty (ideally at least five years)

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The Energy Saving Trust (EST) has published a useful document, CE61: [Energy Efficient Lighting – Guidance for Installers and Specifiers](#).

EST also has an example [LED luminaire specification](#) which contains the requirements for performance, packaging and quality required of LED luminaires applying for approval under the Energy Saving Trust's Energy Saving Recommended (ESR) scheme.

### Case study 13 – Wigan Council's procurement of street lighting

Wigan Council has been leading the way in procuring the latest energy efficient technology and recyclable materials as standard in lighting schemes across the borough. Wigan is also one of just a handful of councils nationally to get all its street lighting energy generated by wind turbines, with electricity bosses praising the council for its 'progressive approach'.

Solar power technology is now used as standard practice to illuminate bollards across the borough. A solar panel captures energy through the daylight hours, and then stores the energy in a battery. A photocell switches on light emitting diodes (LEDs) to illuminate the bollards when it is dark. This means the lights are only on when needed, reducing the council's energy consumption, carbon footprint and overall costs.

Wigan's street lighting team also investigated the implementation of energy efficient and cost effective measures for lit traffic signs, which resulted in the sourcing of LED retrofit gear trays, with a fraction of the power consumption and energy wastage of traditional technologies. The Council is now rolling these out across the Borough and has placed an order for a further 2,000 units in 2011.

These projects form a part of the street lighting teams 'Invest to Save' programme of works, which will see a 100% reduction in energy usage by the traffic bollards and around 85% energy reduction for the traffic sign lanterns, which will result in an overall reduction in the existing consumption of around 204,000 kWh per annum.

The tangible benefits of LED lighting are obvious to Peter Ormshaw, senior engineer (Street Lighting): *"When considering the whole life costs of LED lighting, it proves much more cost effective than traditional lighting solutions. With no requirement for lamp replacements and less predicted equipment failures, the maintenance costs can be significantly reduced, whilst the environmental benefits are obvious, through increased energy efficiency and a reduction in light pollution."*

Wigan Council is now working closely with its suppliers to engage and encourage the industry to adopt more competitive energy efficient solutions.

Residents of Wigan are also supportive. A consultation exercise was carried out with residents on a local housing development following a pilot scheme to replace 18 sodium lanterns with LED street lighting. 87% of residents questioned were very satisfied with the new lighting levels, a further 83% were very satisfied with the new lighting colour, and more than 90% were very satisfied with the appearance of the columns and lanterns. As a result, LEDs are now specified by the Council on all new developments, offering a low maintenance, cost effective solution which can reduce CO<sub>2</sub> emissions by up to 78%.

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The street lighting team expects each project to be self financing through reduced energy and maintenance charges.

For further information contact Keith Benson, street lighting manager: [k.benson@wigan.gov.uk](mailto:k.benson@wigan.gov.uk)

**Further information**

Envirolink Northwest has developed an [Introductory Guide to LED Lighting](#) which defines the terminology used within the industry and the technical capabilities.

Envirolink Northwest also has an energy efficiency supply chain directory available at [www.envirolinknorthwest.co.uk](http://www.envirolinknorthwest.co.uk) and can provide specific advice on products and suppliers. Contact Envirolink Northwest on 01925 813 200.

Phillips has produced a technical guidance document for specification of LED lighting [http://www.lighting.philips.co.uk/pwc\\_li/gb\\_en/lightcommunity/trends/led/LED%20Specification%20Guidelines.pdf](http://www.lighting.philips.co.uk/pwc_li/gb_en/lightcommunity/trends/led/LED%20Specification%20Guidelines.pdf)

Rotherham NHS Foundation Trust has developed a case study for [forward commitment procurement of ultra-efficient lighting](#) for the incorporation of highly efficient, smart lighting systems in a major ward reconfiguration and refurbishment programme.