

Saving costs and carbon by investing in street lighting

Huge financial savings and emission reductions can be made by switching to LED street lighting according to a report commissioned by the UK Lighting & Technology Board. Justin Ward reports.

Fully converting the UK street lighting estate to energy efficient LEDs would, it is thought, cost £755M but generate £6.8Bn of electricity cost savings and deliver 5M tonnes of emission savings over the next 25 years.

The UK Lighting & Technology Board commissioned Streetlighting Advisory Services to carry out the first comprehensive and detailed analysis of the UK's street lighting assets since 2010. Funding came from the Department for Transport and the project was commissioned by the UK Road Liaison Group, which hosts the report on its website.

The report is titled 'State of the Nation' and provides a picture of how the UK's street lights are operated and controlled, their electricity consumption and carbon footprint and the progress made by local authorities in adopting LED technology.

It promises to be a useful read for everyone involved with street lighting, including local authorities, suppliers, manufacturers and those providing support and services.

An exercise was carried out to gather inventory data provided to distribution network operators, which is used to calculate the electricity consumption bills for local authorities each month.

Information was collected for each of the 210 County Councils, Metropolitan and London Boroughs including TfL and unitary authorities across the UK, as well as the four highway agencies in England, Wales, Scotland and Northern Ireland.

Data collected covered the period from March to June 2020 and represents a snapshot of the UK's street lighting estate. Data was cross referenced with the Highway Electrical Association



↑ Energy efficient LED lanterns promise large carbon savings



Yearbook 2019 to see if there were any omissions or anomalies and to ensure that data included was accurate and comprehensive.

LED use in the UK

There are around 3.9M LED lanterns in use in the country, representing almost 55% of all lamps. But given the length of time that LED lanterns have been commercially available, Streetlighting Advisory Services director Lindsay McGregor is surprised that 45% of the nation's lanterns have not been converted.

"There is also still a heavy reliance on lamps which are no longer in production and which will soon be banned under legislation," he says.

Design requirements in BS 5489 allow road lighting levels to be lowered during periods of low traffic volumes and almost all new LED lanterns are supplied with programmable dimming facilities at little or no extra cost.

This presents an opportunity for local authorities to optimise lighting levels.

Analysis of lanterns that are not controlled by a central management system – of which there are 5.1M – shows that 1.95M of them operate either with a part night dimming profile or are switched off for a portion of the night.

Just over half of councils across the UK operate a part night policy affecting around 362,000 street lights. The vast majority of local authorities operate some form of part night dimming to around 1.6M street lights.

This represents a marked change from a survey conducted in 2019 by the Institution of Lighting Professionals which reported that only 19% of local authorities ran part night profiles, with just over half of local authorities running some form of dimming.

It is estimated that additional savings of around £30M a year could be achieved if all new conversions adopted some form of part night dimming.

UK ROADS LIAISON GROUP

c/o CIHT, 119 Britannia Walk
London N1 7JE
web: ukroadsliaisongroup.org
email: info@ciht.org.uk
tel: 0207 336 1555
twitter: @ukrlg

UKRLG Chair: Stephen Fidler

UKRLG Board Chairs:
Roads: James Bailey
Lighting: David Denner

Bridges: Liz Kirkham
Network Management: Mark Kemp
Asset Management: Garry Sterritt

Senior Policy Officer:

Justin Ward
email: justin.ward@ciht.org.uk
tel: 0207 336 1584

A chance to realise savings

According to the State of the Nation report, there are still over 3.2M lanterns that could benefit from replacement to more cost effective, energy efficient and longer lasting LED lanterns.

Investing the £755M highlighted at the top of this piece could also create or secure around 9000 jobs in the lighting sector and generate a return of £3.10 for every £1 of capital invested.

Converting conventional lanterns to LEDs provides a short payback period of between five and six years, generating annual electricity savings of £125M, and could help to offset projected increases in electricity costs.

But accelerating the rate of converting to LED lanterns to just three years could, it is said, result in local authorities realising an additional £200M of electricity cost savings over six years.

Progress with converting to LED street lighting across the UK, however, has been varied. Wales leads the way with a conversion figure of 67%, followed by Scotland at 64%, England at 54% and Northern Ireland with 26%.

Further analysis reveals that 46 local authorities have converted less than 30% of their street lights to LED, despite 40 of those authorities declaring a climate change emergency.

In talking to local authorities, Streetlighting Advisory Services identified some of the reasons for a lack of progress, such as resource constraints and a lack of a full skill set to create and deliver a business case.

Time for change

While the Coronavirus pandemic has had a devastating impact on the UK wide economy, the report says that there is no better time to drive forward with the replacement of remaining lanterns in the UK with LED equivalents.

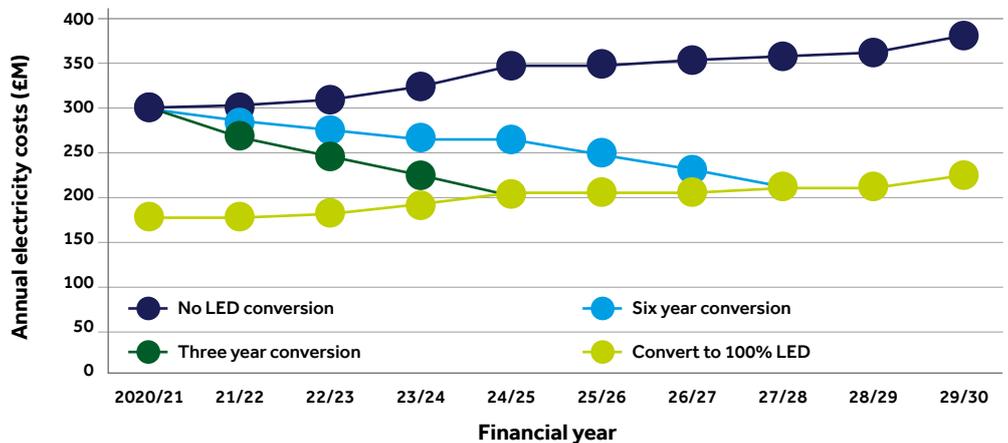
It goes on to say that local authorities can make substantial savings on existing budgets, allowing financial resources to be either saved or reallocated to other front line areas which have been impacted by Covid.

Lighting & Technology Board chair David Denner says making efforts to install LED lanterns now “would create a win-win for local authorities and their communities as well as creating a much needed boost to the street lighting industry”.



↑ Converting conventional lanterns to LEDs could generate 9000 jobs

Predicted street lighting costs



Converting to LEDs would save as much CO₂ as replacing this number of petrol or diesel cars with electric

Helping the supply chain

The report also says that if the capital infrastructure investment of £755M is supported with a relatively modest resource, it could help the extended supply chain including manufacturers, designers, installers and other service contractors.

During the pandemic, it adds, street lighting installation can be very easily and effectively managed to minimise the risk of spreading infection. Works can also support business continuity and provide

employment for thousands of people.

Use of LED lanterns also provides an opportunity for UK governments and local authorities to contribute towards their statutory commitments of delivering challenging CO₂ emission reduction targets.

Going forwards, the use of digital technology and Internet of Things capabilities in converting to LED street lighting could also help authorities looking to transform communities through Smart Cities initiatives.