

Keeping the Lights On

The following article appeared in the Winter 2013 issue of the Durham Energy Institute Review Magazine (Issue 3, Page 9).

To dim or not to dim? That is the choice local authorities across England and Wales are having to make, in the face of budget cuts and requirements to reduce energy use. While we are used to street-lighting being provided throughout the night, over 75% of all local authorities have now started either dimming their lights, or switching-them off during part of the night. But how are local authorities choosing what new practices to take up? And can new technologies help cut spending, without compromising on the social benefits of street-lighting?

In 2013, the Durham Energy Institute's Small Research Grant scheme funded a project called "*Street-Lighting Policy in the North-East: Exploring the intersections between Energy policy and local governance*". Carried out by Dr Robert Shaw of the Geography Department, the research sought to interview council staff from the North-East of England in order to explore how local authorities are responding to the challenge of reducing energy use and spending at the same time. Street-lighting offers high potential for energy savings, accounting for around 20% of local authority energy bills. This has driven local authorities to look towards new technologies, which can create more efficient lighting networks.

However, issues relating to street-lighting extend beyond energy and infrastructure policy. Street-lights can be a key part of community life. They allow people with low mobility, such as the elderly or disabled, greater confidence in leaving their house during the dark: a major advantage at latitudes which see winter darkness for much of the day! Street-lighting reduces fear of crime and, if targeted properly, can reduce crime levels as well. Good street-lighting has been shown to have economic benefits by encouraging people to travel out to pubs, restaurants and shops in the night. Finally, street-lighting significantly reduces road traffic accidents. While the cutting energy use is vital, it needs to be done in a way which does not undermine these various social benefits of street-lighting.

As part of the research project, interviews were carried out with 6 of the 12 local authorities based in the North-East of England. In addition, a company involved in a PFI lighting scheme, and a local lighting design company both participated. Following the interviews, a report detailing key findings was written, which then formed the basis of a workshop at which the participants gathered to discuss their practices and likely future trajectories. The findings of the research can be summarised into three key points.

First, although new LED lighting technologies can offer the best value for local authorities infrastructural and institutional obstacles are slowing their introduction. Those local authorities involved in existing PFI deals may be locked into long-term programmes of

technology selection and lighting management, which would be expensive to alter. Other local authorities are limited by uncertainty created by the proliferation of new technologies, with particular concern about quality of products at the lower end of the LED market: “There’s an awful lot of companies out there making claims as to what their equipment can and can’t do” (Local Authority Participant). Finally, local authorities are restricted by the up-front costs of installing new technologies which may only offer savings over their lifespan.

While local authorities are aware of the social benefits of street-lighting, they have limited plans for measuring or monitoring the effects of proposed changes. This is because the reality of falling budgets means that there is little money for this monitoring, and that changes based on financial savings will be the primary driver of practice. Some of the staff interviewed felt that as long as they adhered to the British Lighting Standards, the social benefits of street-lighting would be protected. While the standards are useful, this also runs the risk of complacency, missing out on the potential reactions to new practices such as dimming or late-night switching off. This is likely to continue into the future: one participant at the workshop warned that “If there are further financial cut-backs we will have to... start switching off lights without consultation” (Local Authority Participant).

Following from this is the final major finding that further change is likely. All local authorities interviewed expected to increase street-light dimming and switching off in the future. Many believed that Centralised Management Systems (CMS) would help them introduce more intelligent practices, allowing them to dim or switch-off streetlights without affecting service levels. Lighting engineers spoke of being able to regulate the times and levels of lighting on different streets over the course of the night. Local authorities could respond to events such as evening football matches by making parts of the city brighter for one evening only. This promise of increased flexibility offers potential for financial and energy savings. However, CMS also has a high upfront cost, and will only work alongside LED lights.

This research from Durham Energy Institute has found that there is significant potential for financial and energy savings in shifting to LED lighting and ‘smart’ CMS controlled lighting patterns. Take-up of these by local authorities will be slow without any extra support, however, meaning that we could miss out on 20-30 years of energy and money savings. Most importantly, continued attention is required in locations where lights are being switched off, in order to retain the social benefits of street lighting.