

Heriot-Watt University Carbon Reduction

Leading Lights! A cost-effective approach to LED street lighting in a campus setting

About the project

Summary

The University installed more than 460 LED street lighting luminaires on roads and paths around the Edinburgh Campus, reducing street lighting electricity consumption by around 75%.

Project partners

The University worked closely with street lighting manufacturers and suppliers during development of the project. The project was also developed in consultation with Salix Finance, who provided an interest free energy efficiency loan to finance implementation.

The results

The problem

With ageing street lighting infrastructure based on high pressure sodium (SON) lamps, the University faced significant energy costs and ongoing maintenance issues. The existing luminaires used lamps rated at 100W (for pathway lights) and 150W (for street lights), but were associated with further energy losses caused by relatively inefficient control gear.

The approach

Having recognised that LED street lighting had reached an appropriate stage of maturity and could offer significant energy and carbon reduction advantages, the University's Electrical Services Engineer worked closely with colleagues and suppliers to identify luminaires capable of providing appropriate levels of illumination, achieving a significant energy reduction and being compatible with existing lighting columns and brackets. The last point was critical towards achieving an acceptable payback period.

Our goals

The University's objectives in the project were to install an efficient, low maintenance street lighting system with high optical performance.



Profile

- Scotland's most international university
- Edinburgh Campus: rural location at city's edge
- Approximately 8,600 students (full time equivalent)
- More than 1,500 staff

Category supported by



Obstacles and solutions

Weight of LED luminaires / compatibility with existing brackets

LED luminaires tend to be heavier than the SON fittings they replace, but working closely with suppliers allowed appropriate models to be identified and fitted for trial purposes.

Performance and results

Installation of LED luminaires rated at 31W (to replace 100W) and 42W (to replace 150W) achieved an annual energy saving of over 245,000 kWh, saving around 130 tCO₂.

The future

Lessons learned

Planning engagement with manufacturers/suppliers and engaging broadly and early in the development of a project is valuable in ensuring that all relevant options can be considered.

Sharing your project

The University has worked to share experiences from implementation of the project via "Knowledge Slides" created with Salix Finance and the hosting of a Salix regional user group meeting at the University, which focused on LED street lighting projects and was attended by street lighting engineers from a number of Scottish local authorities.

What has it meant to your institution to be a Green Gown Award finalist?

'The nomination is a very well deserved recognition of the splendid contributions of our team. It is also a timely reminder that the technology which makes possible these important contributions to energy efficiency all started out as research projects, often in universities like our own---especially appropriate as Heriot-Watt University has a distinguished history of research in optics and optoelectronics.'

Prof Julian Jones OBE, FRSE, FOSA, FInstP
Vice-Principal and Deputy Vice-Chancellor, Heriot-Watt University

Further information

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