Charles Endirect

Ingenuity at work

Project: Street Lighting Improvement & Energy Saving
Client: Merthyr Tydfil County Borough Council

Merthyr Tydfil County Borough Council embarked on a major project to achieve a substantial reduction in energy consumption while lowering their street lighting maintenance costs.

Merthyr Tydfil had an asset of 7,338 lighting points, most of which were high pressure sodium, and all approaching the end of their service life. With continued rising energy costs of more than £400,000 a year, along with the cost of maintaining an aging asset, the Council examined various ways of saving energy along with making a reduction to their public lighting costs.

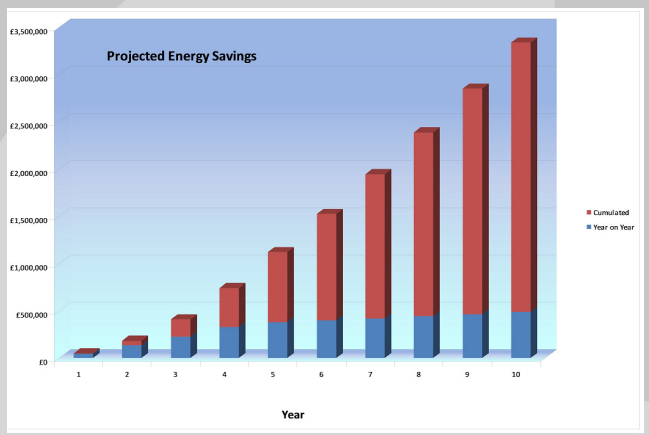
The Council were fully aware of the risks involved in controlled switching off of the lighting and therefore considered that correct management of the lighting together with the upgrading of the asset was the best option. It was therefore decided that a programmed replacement scheme of the old luminaires with new LED fittings was the answer, and to maximize the savings for the Council, a Central Management System (CMS), would also be incorporated.

The Challenges (Planning)

Major capital investment would be required to carry out the project and Mr Chris Ridout, the County Borough Lighting Engineer, carried out a series of feasibility studies and then applied for and successfully obtained energy efficient funding from SALIX to carry out the project.

The total capital investment cost provided by SALIX to carry out the works was calculated at £2.2 Million.

The program commenced in April 2014 with a completion date by end of March 2016. The timetable was to change 3500 units per annum over a 2-year period. This planned schedule of works resulted in a payback period for the project of just over 7 years with the cost of the loan paid back from the savings made to the annual street lighting energy bill.



The Council carried out several trials with different lantern manufacturers and finally decided upon the Urbis Axia 21-watt LED lantern for all the Group B columns and the Urbis Ampera 51-watt LED lantern for the Group A columns.

Several Central Management System manufacturers were approached regarding the performance, technical detail and service requirements of their individual systems. The Councils view was to separate the CMS provision of the project into two areas and between two suppliers, however the Charles Endirect solution provided much the best value for money with appreciably better onsite support and more competitive service and ongoing costs, so the Council decided to adopt the CELtek system alone.

With the lantern manufacturers and the CMS provider finalised, a timetable was set to roll out the project. The Council decided that a timescale of just over two years could be achieved to provide the necessary enhanced savings.

Initial surveys were carried out in detail due to the geographical nature and hilly terrain of the county. Arrangement, positioning and location of the Gateway250 had to be carefully plotted for best transmission.

As a result, although a number would go in existing feeder pillars, it was decided that most Gateways would be supplied in column mounted boxes, which would result in

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additional flexibility for obtaining the best communication to, and from, the central server as well as the signal from the network.

CELtek Column Mounted Gateway in Aberfan

Each Gateway250 is connected to a GSM/Zigbee antenna and can control up to 800 Light Control Units (LCUs) providing they are in line of sight.

Taking into account the geography and terrain of the county, it had been calculated that upon completion of the project, the entire street lighting asset would successfully operate using between 11 and 14 Gateway250 units. Once the Gateway had been registered on the system, installed on site, and powered up, it would operate, receive, and transmit data, and communicate with the network and central server immediately. Likewise, once the lantern mounted LCU was fitted and powered up it would instantly log on and communicate with Gateway250.

One of the advantages of CELtek CMS is that the operating system is web based and therefore no additional software is required to be loaded onto the User's computer.

The Installation

Charles Endirect was tasked with supplying approximately 7,000 lantern mounted LCUs into the county, with these fitted into their new LED luminaries.

Once the Gateway250 had been installed and commissioned in the best location, the lantern replacements were carried out in that area. The LCU's were fitted and wired into the new Urbis Axia and Urbis Ampera lanterns in the depot's electrical workshop, and then installed on site. As each street and area was being populated, the Charles Endirect support team provided ongoing assistance to the Council's installation teams during the entire process.

CELtek LCU fitted on lantern

Continued support was provided to Merthyr Tydfil Council in entering all the operational data onto the CELtek software, this process ensured that the Gateway250 was communicating with the LCU's and the correct data was being transmitted and received.

Before, during and after the installation and commissioning of the CELtek system, the staff at Merthyr Tydfil Council received comprehensive training and guidance throughout the entire project. However, it does not stop there as technical support and system welfare is continuous throughout the service agreement.

The completed project resulted in a vastly improved street lighting asset for Merthyr Tydfil Council as the monitoring function of the system highlights any maintenance issues allowing them to be resolved quickly and efficiently.

The continued use of the system enables them to monitor and control the street lighting thus providing an effective maintenance regime which in turn results in energy savings.

This case study shows the substantial cost and energy efficiencies that can be achieved combining the use of LED lanterns controlled by the CELtek Central Management System.

The versatility of the system to operate effectively in the most challenging terrain, together with industry leading onsite support and competitive ongoing service costs has meant CELtek has become the Central Management System of choice.

To find out more about CELtek CMS, or any of our other products, please contact us.