



The monitoring and control of street lights has become increasingly common in the UK owing to the move towards electricity metering demanded by new regulation and the rising cost of energy. A major initiative to replace street lights across the country has presented the opportunity to introduce smarter street lighting and this forms an important part of local authorities' aims to embrace the environmental "green agenda". Furthermore, the system described here predicts lamp failure and allows planned preventative maintenance, saving significant costs.

Plextek's solution allows street lights to be "trimmed and dimmed", i.e. to be turned on and off accurately depending on the day of the year or to be dimmed depending on ambient light conditions. The system allows groups of lights to be independently controlled

so, for example, lights near a school can be brighter or on for longer to improve road safety. Likewise, lights can be turned on to deter crime or illuminate an incident attended by the emergency services.

The monitoring and control technical solution involved sensing the voltage and current in the lamp unit and deriving the power consumption and the power factor - power factor is important as it indicates the "health" of the lamp; a failing lamp will have a high power factor. This information is transmitted to a base station serving up to 5000 street lights. The base station also sends commands to the street lights to switch or dim. The base station itself contains sensors, for example to monitor light levels and the local radio interference environment.

The application called for a very challenging cost target for the system and especially the street light units. One ingredient in achieving this was to use offshore manufacturing and Plextek was responsible for setting up production in the Far East on behalf of the client. With the sensor being exposed on top of a street light column, a strict environmental specification was called for with respect to temperature range, water tightness and resistance to deterioration of the plastic sensor housing caused by sunlight.

Our client for this project is now a UK market leader in street light management with over one million street light units deployed. Local authorities, who have become early adopters, are already showing large energy cost savings.