

case study



'...really helped with cash flow...'

Background

The picturesque Glenavon House Hotel is located in the heart of Northern Ireland and boasts an extensive range of facilities including 62 luxury suites, conference rooms, nightclub and swimming pool. With all these facilities to run you can imagine managing energy costs could prove somewhat difficult.

The Glenavon House Hotel is now one of a growing number of hotels reducing their carbon footprint and energy expenditure by taking advantage of voltage optimisation technology.

Hughes Energy Systems carried out a survey of the site to qualify whether there were significant savings to be made and how the project should be implemented. Using the information gathered by Hughes Energy Systems, Brian Morris, the Hotel Director, decided that voltage optimisation was a good starting point for an energy-saving strategy. Brian submitted an application for an interest-free loan from the Carbon Trust to cover the cost of the work.

"The loan from the Carbon Trust has been great and really helped with cash flow. It covered the voltage optimisation installation and I still have entitlement left to invest in additional energy saving technologies."

How it works

The electricity supply to premises in the UK and Ireland is often at a voltage that is higher than is necessary.

Voltage optimisation works by reducing the electricity voltage throughout the hotel to reduce losses in lighting, pumps, fans, refrigeration and air-conditioning equipment – thereby reducing the overall electricity consumption.

Lighting is central to creating the right atmosphere in a hotel and there is sometimes a concern that a lowering the voltage output will create a highly visible difference to lighting levels. It is true that a lower voltage can lower the lux level in certain types of bulbs. However this is minimal and mostly not noticed by the human eye. Brian Morris describes this in the simplest of terms "There has been very little difference, nobody on the staff has noticed a change."

'...reducing the electricity voltage throughout the hotel...'

Added value

“The cost reduction has not only been seen in our energy bills but also in maintenance expenses. I have needed to order fewer replacement bulbs than normal and the lifespan of other appliances such as the ovens has probably increased.”

Brian is also able to take advantage of the data collected by the two meters included in the installation. The Northern Design smart meters are capable of sending energy data via the existing computer network. The meters have web servers built in allowing the data gathered to be viewed from any web browser. This feature also takes away the requirement for the installation of extra computer software.

Outcome

Possible savings at the site were initially predicted at 12.6%. Early indications show that the hotel is making over 13% savings in their energy consumption on the same period last year. These savings are illustrated in the energy analysis chart shown. “The advantages of taking steps to reduce energy consumption can already be clearly seen in the savings we are making.” says Brian.

Exact savings are difficult to calculate accurately because variables such as energy tariffs and charges, weather and occupancy levels should be taken into account. Taking this into consideration the hotel is still seeing a great reduction in energy expenditure and reduced maintenance costs.

Technical details

The average voltage on the site before voltage optimisation was 238 Volts. As on most sites, the voltage varied during the day and was different on each phase of the supply. A Claude Lyons PowerSave ESS-A-3-600 voltage regulator was installed, and this is now regulating the voltage to 220 Volts ($\pm 1\%$) - at all times and on all phases - to ensure that the benefits of voltage optimisation are fully realised.

The regulator was installed in an outside building previously used as a storage area. The installation was straight forward and completed to a very high standard by P. Crilly & Sons electrical contractors. “The regulator is great. It is pretty much a fit and forget solution. It does all the work.” - Brian Morris.

Claude Lyons PowerSave energy-saving voltage regulators are available from 32 Amps to 2000 Amps for 3-phase and single-phase installations. Claude Lyons Ltd has been manufacturing voltage regulators for more than 80 years and its products have been installed in most parts of the world. Hughes Energy Systems Ltd. is the sole distributor of Claude Lyons products in Northern Ireland and the Republic.

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Daily kWh electricity 2008-2009



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