

CASE STUDY

The National Gallery

The National Gallery in London houses one of the most important collections of Western European art in the world, attracting over 6 million visitors a year. The Gallery has committed to reducing carbon emissions by 43% by 2015 and prioritises the responsible use of energy in running its site. One of the projects within the carbon management plan involved replacing all of the galleries with LED lighting. This not only reduced energy consumption but also gave the benefit of not producing UV light, which harms the paintings.

Open Technology designed and executed a project to combine the new highly efficient LED technology with an intelligent, digital control system. This resulted in combined energy savings of 85%, while maintaining a precise and consistent lighting environment.

The Gallery wanted to make good use of the daylight provided through the building's skylight glazing. These are controlled via external louvres and indirect sensors connected to the Building Management System (BMS), which is operated by Norland Managed Services.

LiGO is able to slowly augment the natural light by adjusting the light output from the LEDs. This ensures that the paintings are lit to exacting scientific standards while using as little energy as possible.

The project is one of the first in the world to use LEDs in conjunction with a system that automatically adjusts external roof light blinds according to the amount and angle of sunlight.

Chris Bedford, Managing Director at Open Technology explains: ***"The challenges for a lighting control system in any building is to deliver just about the right amount of light; in a gallery environment that's of paramount importance because of the need to protect the artwork. We were able to automate and control the Gallery's lighting to ensure the greatest possible use of natural daylight."***

The LiGO control system was integrated with the Gallery's existing BMS in order to save costs and extend the life of the Gallery's existing infrastructure.

Groups of lights were set up under the scrutiny of the curators working alongside Open Technology's engineer. These were then integrated into the BMS so that lamp and ballast failure could be reported to the Gallery's facilities management provider.

In between the galleries, a LiGO View Panel allows staff to easily adjust the lighting environment in each room. This is particularly important in the event of rehanga when the light levels needs to be adjusted accordingly. Out of hours, LiGO ensures that the lighting is able to react to the Gallery's security requirements. LiGO initiates a default setting with the lights at a minimum level but is able to detect the presence of security staff and increase the lighting accordingly.

The project met The National Gallery's key objectives of reducing energy consumption and maintenance costs, whilst achieving a superior quality of light. Open Technology delivered impressive energy and cost savings with minimal disruption to operations, and was able to move the gallery considerably closer to achieving its ambitious carbon reduction plans.

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Functionality



Time Control

Lighting output and settings can be matched to your building's exact occupancy times, adapt to changes in daylight saving time and even accommodate public holidays.



Daylight Balancing

External light not only allows you to create a more natural, enjoyable environment, it's also free. Automatic switching or dimming ensures light levels respond to maximise and compliment the available daylight.



Ventilation Control

LiGO can also control heating and cooling systems according to time or occupancy. This control can be applied to ring main circuits in the building where, for example, large numbers of PCs are left switched on overnight.

"The LiGO control system has enabled us to integrate a digital dimming system for our lighting that is able to actually talk to our BMS system. With our previous system we could only switch on and off, whereas LiGO has enabled us to progressively dim and bring up the light in conjunction with daylight levels."

Steve Van Dyke, Head of Building and Facilities,
The National Gallery, London

Annual Savings

765,000 kWh

ENERGY CONSUMPTION

£36,000

MAINTENANCE

£53,600

ENERGY BILLS

417 tonnes

CO₂ EMISSIONS

open
technology