

<b>Organisation:</b>	<b>Equans E&amp;S Solutions.</b>
<b>Business:</b>	<b>Connected Cities</b>
<b>Sector:</b>	Infrastructure
<b>Requirements:</b>	Raise awareness and reduce emissions in support of corporate target
<b>Services provided:</b>	Behavioural Change and Energy Monitoring
<b>Provider:</b>	Equans E&S Solutions
<b>Achievements:</b>	17% reduction in total site energy, 76% for lighting
<b>Key Success Factors:</b>	Senior management buy-in
<b>Transferrable Principals:</b>	LED upgrades, In-house awareness programme

IPMVP ★★★★★  
level

## The Customer

Connected Cities is a division of Equans E & S, one workstream is providing streetlighting and other infrastructure services for roads and highways. It operates out of one central hub and two regional hubs that combine offices and warehousing facilities.

Equans is part of Bouygues SA, a large global consortium, working not only in construction, civil engineering and FM but also telecommunications and television. The company has significant leadership commitment to tackling climate change and provides mandatory climate awareness training to all staff. Many frontline staff within Connected Cities are lighting engineers, they understand LED technology and have upgraded more than 200,000 streetlighting columns to LED lanterns.

The company has ambitious carbon reduction targets and seeks to innovate internally and then roll out successful technologies and approaches to clients.

## Objectives

To trial the EnCO approach with a view to being able to demonstrate its effectiveness and so offer EnCO consultancy to clients who wish to transform their approach to using energy and achieve energy and carbon savings. There was also a leadership wish to be the first division within the Bouygues group to achieve this certification.

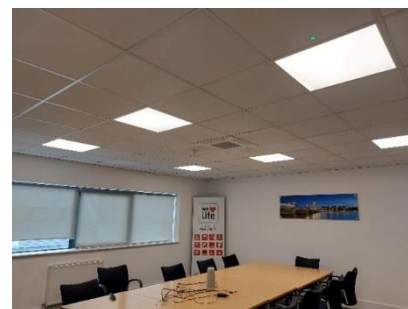
## Services provided

Equans has a central sustainability team with energy management expertise that supports all areas of the business. Equans introduced the EnCO concept to Connected Cities and ran workshops to establish both the initial and final positioning on the maturity matrix. During the

project Equans delivered awareness training through newsletters, open invitations to its monthly carbon steering group meetings and delivery of a 'Climate Fresk'; game-based training that facilitates effective self-learning of the causes and consequences of Climate Change.

Equans also put in place Smart Impulse, an intelligent metering system that uses advanced algorithms to not just measure energy usage but apportion it to different end uses; effectively a real-time energy audit. This metering was installed into the Mallow Park central hub, where it was agreed to upgrade all lighting in the offices and warehouse to LED. The metering was used to produce monthly M&T reports and the energy manager discussed any deviations from expected levels with the site manager.

This upgrade was designed to be undertaken in two phases; firstly to upgrade the lighting in the offices and communal areas and secondly to upgrade the lighting in the warehouse. Phase One commenced in late November 2022 and was completed in December 2022, Phase Two commenced in late June 2023 and was completed w/c 17th July 2023.





## Results

Average Lighting	kWh/month	Savings kWh/month
Before project start	2,225	
After Phase 1	1,162	1,063
After phase 2	583	1,642

The lighting upgrade was very successful, both in terms of the amount and quality of light provided and in terms of the energy savings being realised. Extrapolation of the reduced monthly and weekly average figures gives a predicted annual energy consumption for site lighting of approximately 7,000kWh. This compares to the annual level before the project of 29,300 kWh, a reduction of 22,300 kWh equivalent to 76.1%.

If all other usage, IT, HVAC etc remains the same then this would see a reduction of 17% in total site energy usage and the project would, using current grid conversion factors, contribute a CO2e saving of 5 tonnes towards the company's net Zero target.

The total project cost was £22,300 which, at current unit prices, would give a simple payback of 2.7 years



Run in parallel with the lighting project, an awareness programme was successful in raising the scores in the EnCO matrix to take the HLG business from Silver to Gold, an improvement from a score of 14 to 18.

	Initial Score	Achieved Score
Engagement	3	4
Alertness	2	3
Skills	2	3
Recognition	3	4
Adaptation	4	4
<b>Total</b>	<b>14</b>	<b>18</b>
	<i>Silver</i>	<i>Gold</i>



## Summary

The savings realised through the lighting upgrade scheme at Mallow Park are significant, having reduced the average energy usage for lighting from 583 to 225 kWh/month which represents a 76% reduction in the energy for lighting alone and a reduction of 17% in the site's total energy usage.

The progress with regards to the EnCO matrix took the business from a total score of 14 to a revised score of 18. This is in line with the target improvement, although Engagement was slightly under-achieved (3.5 against a target of 4) and Skills over-achieved (3.5 against a target of 3).

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