



Energy efficiency



LIGHTING RETROFIT PROGRAM OF AIR LIQUIDE SITES IN ASIA

CONTEXT

Lighting represents an important part of the electric consumption of buildings. In order to improve the energy performance of its 120 sites in 13 Asian countries (China, Singapore, Thailand, Malaysia, Japan, South Korea, Taiwan, ...), Air Liquide has called on ALTEREA, through its Joint Venture with ADEN Services to retrofit all of its lighting systems (relamping).

The first project concerned the office buildings of Air Liquide China, located in Shanghai. The site is an office building of 6 floors composed of several areas (offices, corridors, meeting rooms ...) in which lighting systems lead to overconsumption and work discomfort for employees.

The works finished are as follows:

- Replacement of 36W fluorescent lamps by 18W LED tubes
- Replacement of 18W fluorescent lamps by 9W LED tubes
- Replacement of 35W spotlights by 5.5W LED spotlights
- Redesign of the electrical distribution network
- Refurbishment of ceilings

Further to this first mission 3 in 5 missions of relamping are going to take place every month on all the 120 Asian sites of the group, by beginning with Singapore which group about twenty sites.

THE LAMPS AND LED MODULES

A light emitting diode (LED) is an electronic component for the conversion of electricity into light. For the lighting, we use lamps consisting of several LED. Performance improvements have now increased the lifespan of LEDs to 25 000 hours. The performances of LED solutions are constantly improving and some of them are as competitive as conventional general lighting solutions. An EU regulation will help to give objective performance evaluation criteria for these lamps.

THE EQUIVALENT SAVED IN GREENHOUSE GAZ EMISSIONS (TEQCO₂) WITH COMPARED WITH THE PREVIOUS SOLUTIONS

Before works, The annual total consumption in electricity of the site Air Liquide in Shanghai was 328 253 kWh. Further to the implementation of lamps and LEDs modules, this one decreased of about 50 % that is 160 849 kWh.

In China, the quantity of greenhouse emissions by kWh amounts to 0,766 kg CO₂e kWh (source: Burgeap). So before works, the annual greenhouse emissions of these offices amounted to 251 TeqCO₂. Further to the works, these reached 132 TeqCO₂ is a reduction in 47 %.



THE INTERESTS OF THIS PROJECT FOR THE FUTURE STAKES ON THE CLIMATE ARE THE GREENHOUSE GAS REDUCTION, THE INTERNATIONAL NEEDS, ECO INNOVATION

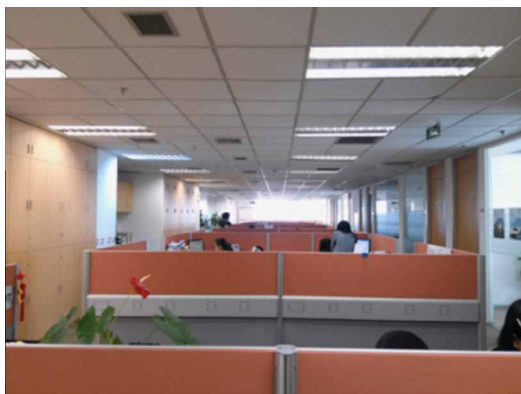
These works allowed electricity consumption savings of around 50%. In addition to these savings, the electrical renovation has improved the comfort of employees, secured the building and embellished the work places. It also helped to create a good image of the company in the eye of the general public and the Chinese government who have set up a national policy of energy savings and greenhouse gas emission reduction.

Lighting retrofit should concern all types of structures (companies, institutions, real estate, ...), do not require enormous costs of works (fast Return on investment) and can engender great reductions in energy consumptions and in greenhouse gas emissions

IN WHAT THIS EXEMPLARY PROJECT BRINGS AN OPERATIONAL SOLUTION WITHIN THE COP 21?

Ce projet montre que grâce à des travaux de rénovation simples et pas extrêmement coûteux, chaque entreprise et chaque pays peut participer à la réduction des consommations énergétiques et des émissions de CO2.

This project shows that thanks to simple and not extremely expensive renovation work, every company and every country can participate in the reduction of the energy consumptions and the greenhouse gas emissions.



To keep contact with ALTEREA : slapierre@alterea.fr