

RECP Best Practice Catalogue

*Replacement of conventional light to LED
Developed within the framework
of MED TEST II*



UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION



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Best Practice - Replacement of conventional light to LED

SECTOR:	Others
SUBSECTOR:	Manufacture of glass and glass products
PRODUCTS	Clear, automotive, tinted, tinted coated and coated glass.
CATEGORY	Technology upgrade/Eco-innovation
APPLICABILITY	Utilities
COMPANY NAME	---
COMPANY SIZE	Large

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Description of the problem (Base scenario):

The company has a large floor area for the production line and for the warehouse. This area has a limited number of transparent sheets mounted on the side walls that are yellowish and oblique due to the sandy environment around the company. In addition a conventional lightening system consists of 1240 light fixtures that are always on, with no motion sensors. These light fixtures are utilizing halogen, fluorescent and incandescent lamps with high consumption of electricity. A light inventory was prepared, with the lamp rating and operating hours for each lamp. From that inventory, it was clear that the company spends 1,290,856 kWh/y of electricity (3% of the baseline consumption) on lights.

Description of the solution

Replacing the conventional inefficient lightening units with more efficient LED units shall save at least 50% of the baseline for lights, frequent cleaning and maintenance for all the transparent sheets in addition to installation of motion sensors will further reduce the electricity consumption by about 30% from the original baseline.

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Economic Benefits

The electricity consumption assigned for lightening purposes is 3% of the total consumption (1,290,856 kWh/y).
Cost of electricity used for lightening is 49,698 Euro/y
Reduced electricity consumption from changing to LED is expected to be 50% from baseline which equals to 645,428 kWh/year.
TOTAL annual saving due to replacing the original light to LED = 24,849 Euro/y.

Environmental Benefits

- Reduced electricity consumption by 645,428 kWh/year (50% from the baseline).
- Reduction in CO₂ emissions by 310 tons/year.

Health and safety impact

Improve workplace environment through less development of heat emitted from conventional lightning units therefore heat stress levels will be within the limits.

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Capital investments & financial indicators	Total cost for replacing the conventional light fixtures to LED is 34,875 Euro/y Payback is around 1.4 years
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Suppliers	local LED vendors
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Other aspects	Further reduction can be achieved through the motion sensors to switch on the light only when needed, this modification is under investigation by the company safety team. Better light means better working conditions and lower maintenance cost.
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Implementation	The measure is implemented by the company and real savings numbers obtained. Savings achieved are close to that in feasibility calculations.
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Replicability sectors The same concept can be replicated in all industrial companies.

Aspects to investigate for replicability	Light inventory Operating hours for each lamp Electricity consumption.
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Useful resources
