

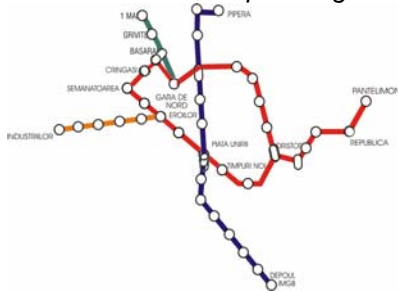
LIGHTING SYSTEM REHABILITATION Sector : PUBLIC TRANSPORT

METROEX
BUCHAREST
Romania

Lighting systems are a very important energy consumer in METROEX infrastructure, being permanent in function and having a big impact in security and comfort of people. The actual lighting technology and equipment are very old and needs significant improvement. The company considers the energy efficiency as one of the basic criteria for lighting modernization. Introduction of low consumption lamps and electronic ballasts are the main objectives of the project.

PARTNER

METROEX – is a public transport company operating the subway in Bucharest since 1979. Existing installations are in rehabilitation process and an extension of the subway system is in progress. Total length of lines is 62.67 km with 44 stations. The total number of passengers in subway: 140 000 000 / year



CONTEXT

For specific activity in a subway company lighting has a crucial importance for comfort and security reasons. Lighting system share in total electricity consumption is 13%. The company METROEX started a very ambitious plan for reduction of electricity consumption by replacing old trains with equipment from new generation - 21 trains in the phase no.1. (fig.1), and by modernization of interior lighting system. By this way the energy intensity was deeply decreased in 5 years 2001-2005 (fig 2). Metering system for monitoring of electricity consumption is also in the modernization phase 2.



Fig 1

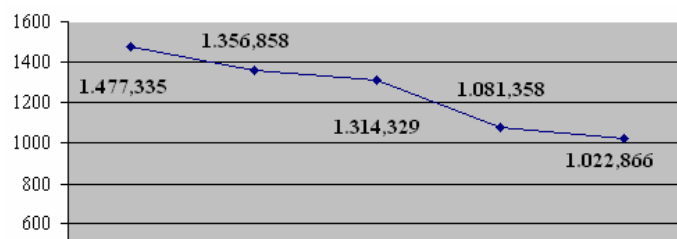


Fig 2

This effort to reduce share of electricity cost in total operational cost is an important possibility to compensate the rapid increase of electricity price, having a positive social impact on transport cost for the big number of Bucharest passengers in public transport.

EXPERIENCE OF THE PARTNER

Partnership process

ARCE is in permanent contact with biggest energy consumers, according to the Energy Efficiency Law provisions . The company METROREX is in category of companies having more that 1000 toe/year energy consumption and have the legal obligation to prepare an Energy Efficiency Master Plan Energy manager of METROREX has been certified by ARCE. Lighting rehabilitation program has been one of the subjects for evaluation in order to issue this certificate.

The company is fully committed to reduce energy consumption, including electricity consumption for lighting.

Technical data

For modernization of interior lighting more than 43 000 luminaries have been replaced totaling more than 93 000 lamps (fig.3). New lamps are 38mm florescent tubes, including magnetic low-lost ballast and aluminized reflectors and CFL self ballasted.



Fig 3 Low consumption lighting system in subway station "Titan"

As a result of lighting project the total power installed for lighting was reduced by 731.16 kW (23% from previous installed capacity) and the total energy saving is 5.1 GWh/year .

COST AND BENEFITS

Economical

The economic aspect of the project in 4 years of implementation is very attractive having a pay-back period of 2 years.

The yearly running cost have been reduced by 13%.

All financial effort was supported by the company from their own financial resources.

Environmental

According to the energy saving impact, the CO₂ reduction potential is estimated at 2473 tCO₂/year.

As a public recognition of lighting project performances a NewGreenLight plaque have been granted by ARCE to METROREX .

The company decided to install a copy of this plaque at every entrance of the subway stations for increasing the visibility of NewGreenLight project and for education of employees and visitors

FURTHER INFORMATION

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