

TITLE OF THE PROJECT

Street lighting of the Kladno municipality

SECTOR STREET, SQUARE LIGHTING

PARTNER:

KLADNO

(Czech Republic)

PARTNER

Kladno is a city in the Central Bohemian region of the Czech Republic. It is located 25 km north-west of Prague. Kladno is the largest city of the region and holds a population together with its adjacent suburban areas of more than 110,000 people.



CONTEXT

Since 2007, the general replacement of the lights in Cyrila Boudy, Jaroslava Kociána, Americká, and Vodárenská streets in the city of Kladno has begun. It is one of the central routes which leads through the Kladno city. Four traffic lanes, numerous pedestrian crossings, bus stops, bridges, this all underlines the heavily trafficked road and the necessity to respect the parameters like the light intensity (and its equality to avoid the glare of the traffic participants), which have been set by the legal standards.

The City of Kladno acceded the quality of street lighting not only on the base of proclaimed savings on operating and maintenance costs but also due to the demand of the increasing traffic safety in the evenings and during the nights. The lights ARC 80 fitted with 70W HPS discharged tubes, were used, which were used with success also in the previous implementations. This configuration has successfully replaced the former 150W HPS discharged lamp. Therefore 87W on each light point has been saved by this measure.

EXPERIENCE OF THE PARTNER

Partnership process & Technical data

The lights type ARC 80 has been chosen on the platform of the expert calculation, with the declaration of observing the valid standards for streetlight ČSN EN 13201.

A reduction of light maintenance costs (general lights replacement only once in four years) has been also achieved by the use of the aluminium lights with the double shielding DIP 66. Nevertheless, aluminium made lights, compared with the plastic made, are fully recyclable, even after 30 years. The advantages of aluminium lights are stability of size through the lifetime and better thermal conductance in compare with plastic made lights. These improvements have a positive impact on the lifetime of electrical and electronic parts inside the light (voltmeter multiplier).

COST AND BENEFITS

Economical & Environmental

Thanks of these savings, the investment for 500 thousand CZK (20 th. Eur) (acquisition of material) has 3.26 years long investment return. Net present value of the investment is 1 743 thousand CZK (67 th. Eur) and the internal rate of return is 20,61%. The city of Kladno will save during the 15 years of

the life time (only in this area) 3,13 million CZK (120 th. Eur) – or more, in accordance with the growing energy prices.

There were saved 49MWh of electricity per year due to the total replacement of 138 lights in Kladno (the lights are on for 4100 hours /year – it is on average 11.23 h/day). Recalculated for assessed 15 years period, it saves almost 483 tones of CO2.

EVALUATION AND OUTLOOK

This is an example of a situation, when strict economical and ecological criteria don't need to have a negative influence on functionality and suitability of public light in municipality. It is also an illustration of the progress in the lights manufacturing and light technology for the last 30 years. For example, by the cut-down of installed load by one half, it improved the lighting parameters, what can be visible to everyone and anytime.

FURTHER INFORMATION

Name of the contact person: Martin Dvořák

Position: Marketing

Organisation: Indal C&EE, s.r.o.

Address: Business Centre Mikrotechna, Barrandova 409, 143 00 Praha 4, Czech Republic

Tel/fax: +420 225 273 642-3, : +420 225 273 649


e-mail: marketing@indal.cz

Prepared in cooperation with:

The GreenLight National Contact Point Czech Republic – SEVEn, The Energy Efficiency Center, www.svn.cz

www.eu-greenlight.org

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