

The Modernization Project for Backlit Advertising Panels and Car Park Lighting at Haná Retail Park in Olomouc, Czech Republic



Report on the Implementation Process

Prague, February 2015

ASSIGNMENT:

The main objective of the project was the modernization of the lighting system of the existing backlit advertising panels and the parking area of the retail park. The key parameters, as assigned by the client, were high quality of the delivered solution, long-term sustainability of the project, and energy saving.

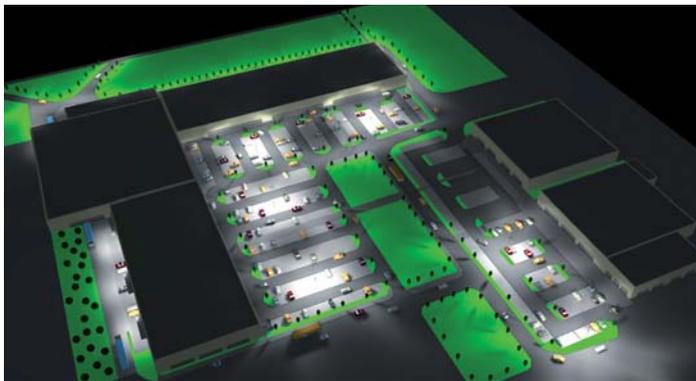
PROJECT PREPARATION:

Before the start of the actual implementation, a mathematical model was developed to clarify the illuminance situation of the parking area. The basic problem proved to be the small number of relatively tall posts provided to hold the existing discharge lamps. Trying to comply with the Czech/European technical standards to the maximum extent possible, we had to – very sensitively – choose a solution whose key point was the choice of highly efficient 120-chip LED lights, and the design of an atypical street-light arm. Particularly this tailor-made arm with its inclination of 20°, which is designed to provide the most even illumination possible, was the key component ensuring the compliance with the requirements of the “ČSN EN 12464-2” technical standard.



3D VISUALISATION:

Our 3D visualisation of the illuminated parking area offers a relatively faithful picture of the final conception, which is the goal of the whole project.



IMPLEMENTATION PROCESS (16th Dec 2014 – 2nd Feb 2015):

The physical installation was carried out by our partner company – ELPAS Vrbno Ltd., which has all the necessary equipment as well as qualifications, and during the two decades of its operation has gathered a great deal of practical experience with similar fittings.

The installation started on Tuesday, 16th December 2014. The first step was the exchange of existing fluorescent tubes and respective parts of electrical power distribution inside the backlit panels fixed onto the central pylon bearing the name Nákupní park Haná (“Haná Retail Park”).

The panels themselves were also inspected at this point, their inner parts cleaned, and the outer transparent cover sheets were also checked. The pylon was put back into service on Friday, 19th December 2014.

The next step was the exchange of the light sources inside the nine backlit advertising panels situated on the sides of the retail park building. The process was relatively





time-consuming because of the inclement weather as well as the difficulty with which the front of each panel had to be opened as they were all covered by tarpaulin. The first seven panels were put into operation on 28th December 2014. See below for photographs.



During the Christmas holidays, the following stage was executed – the installation of new 90-chip LED lights fitted onto the posts along the supply roads. See next page for photographs.

At the beginning of 2015, the implementation was completed by the production of atypical street-light arms. Their manufacture was provided by a family-run Radoň engineering plant from the town of Velim, which enabled ELPAS Vrbno Ltd. to successfully finalise the whole project on Monday, 2nd February 2015.



OPTIMISATION AND SAVING:

One of the significant advantages of high quality LED light sources is their considerably lower rated consumption.

Several types of sources were installed in the project; their consumption figures can be seen, compared with the original solution, in the table below.

Location	Original Source	LED	Number of Units	Nominal Saving
Pylon	58(64)W *)	27W	198	57,8 %
Panels	58(64)W *)	27W	180	57,8 %
Panels	18(24)W *)	10W	90	54,5 %
Street Lights	150(180)W *)	105W	15	41,6 %
Street Lights	70(85)W *)	36W	2	57,1 %
Parking Area Lighting	400(480)W *)	142W	(22) 24 **)	70,4 %

*) the real source consumption is stated in brackets

***) the original 22 discharge tubes were exchanged for 24 LED lights

QUALITY AND PARAMETERS OF THE SUPPLIED LIGHTINGS (LIGHT SOURCES):

A significant problem of the current LED light-source market is that products from different manufacturers, and sometimes even different products of the same manufacturer, exhibit considerable differences in quality – especially in relation to their power supplies. These inconsistencies can lead to devices being susceptible to failure and have a negative effect on power networks.

Low quality power supplies are characterised by their non-sinusoidal power consumption from the mains (i.e., they cause a significant presence of higher harmonic components in the network) and also by the low capacitive power factor, which can – under certain circumstances, for customers connected to high voltage network – cause penalisation from the side of the distributor for supplying reactive power into the grid.

Our company, EnergyCon Ltd. is dedicated to this issue and continuously evaluates the quality and characteristics of the individual light sources used in its offer. In cooperation with our supplier and strategic partner, Neo-Neon CZ Ltd., we also carry out regular evaluation of the light parameters of individual power supplies with the aim of finding sources with increasingly better parameters. Through Neo-Neon CZ Ltd., the technical requirements for light sources are transferred all the way to manufacturers.

ABOUT OUR COMPANY:

EnergyCon Ltd. was created in 2012 as a project observing modern development trends in the field of energy. The company sees its mission primarily in finding new solutions for operational optimization of energy and decentralized micro-energy. The development of this area is, in our opinion, the trend for the near future; a trend that brings a number of positive effects – from a more environmentally sound approach, through reducing the wastage of scarce resources, to stable and sustainable savings for the customer.

The company is a member of a group that has successfully been on the market for almost two decades. Led by sister organizations ProTyS Plc (www.protys.cz) and CertiCon Plc (www.certicon.cz, www.certiconglobal.com), and in close co-operation with the Czech Technical University in Prague as well as other universities both in the Czech Republic and abroad, the group dedicated to research and development in the field of software and hardware, using the principles of cybernetics, artificial intelligence, real-time control systems and other disciplines. The results of the work of nearly three hundred researchers and developers of this group are directed towards customers such as Volvo, Medtronic, Airbus, Bosch, Frequentis, Rockwell Automation, etc.

APPENDICES:

- » Model – Summary
- » Technical Data – Materials
- » Technical Data – Street-light arm
- » Records of Inspection Conducted

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