

The European GreenLight Programme Efficient Lighting Project Implementation Catalogue 2005-2009



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EUR 24698 EN

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JRC 62317
EUR 24698 EN
ISBN 978-92-79-19073-5
ISSN 1018-5593
doi:10.2788/2539

Luxembourg: Publications Office of the European Union

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ISBN 978-92-79-19073-5

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Disclaimer: the examples in this brochure are self-reported by the GreenLight Partners. Their energy savings are assessed by comparison with either the pre-existing lighting (in the case of a renovation) or a conventional new installation (in the case of a new building). Energy savings potential is specific to each lighting installation, depending on the installed technologies, the operating hours, the occupancy pattern and other factors. All GreenLight upgrades shall be made in conformity with Community, national and local regulations. Neither the European Commission nor any person acting on behalf of the Commission is responsible for the use which might be made of the contents of this brochure.

THE EUROPEAN GREENLIGHT PROGRAMME

GreenLight is a voluntary programme where private and public organisations commit towards the European Commission to upgrading their existing lighting, and to designing new installations, using energy efficient lighting systems when the energy savings justify the investment and lighting quality is maintained or improved.

This is the second report which collects the successful examples of efficient lighting project in the Member State of the European Union and other countries. The time period covered in this report is from 2005 until the end of 2009. This summary provides a picture of the main type of project in the different sector that have been implemented within the GreenLight Programme.

Lighting electricity use in European non-residential sector represents more than 160 TWh/year. This has a substantial impact on the environment, accounting for up 40% of electricity used in non-residential buildings. Major energy savings can be achieved. Examples from the field have shown that between 30% and 50% of electricity used for lighting could be saved investing in energy-efficient lighting system. In most cases, such investments are not only economically profitable but they also maintain or improve lighting quality.

To pull the demand for efficient technologies, the European Commission (EC) launched in February 2000 the European GreenLight Programme. It is an on-going voluntary programme whereby private and public organisations (referred to as Partners) commit to adopting energy-efficient lighting measures when the cost of these measures is repaired by the associated saving and lighting quality is maintained or improved.

In return for their commitment, not only do these Partners benefit from the savings, but they also receive broad public recognition for their effort in protecting the environment. GreenLight is promoted by the European Commission and a network of national energy agencies or similar bodies. The full details of the GreenLight Programme, including obligations and rewards, are available on the programme web site at www.eu-greenlight.org.

By the end of 2009, a total of more than 600 GL Partners signed the GreenLight Partnership, thereby committing to adopting energy-efficient lighting practices in their premises. This represents more than 3 times the number of the Partners listed in the last report. It confirms that the rate of registration was steadily increasing.

Partners' size varies to a large extent. Some like Bosch, Decathlon, Coca Cola, Glaxo Smith Kline or Renault Trucks are international groups with thousands of square meters. Others represent large cities such as Munich, Hamburg, Turin, Helsinki. Other like Lom or Pabianice are small towns with a few kilometres of illuminated roads and little communal buildings. Other projects are sport-hall, offices, libraries, hotels representing less than 1000 square meters.

Various business fields are covered: commercial, educational, healthcare, hotel, industry, leisure/sport, transport, etc.

From 2005 to 2009 a new category starts to be an important area of action for efficient lighting or relighting: sport hall. This was especially visible in Belgian Partners. In these areas we can also note an increasing of little municipality as new GL Partners.

Generally speaking, the lack of capital and the inability to get financing for project are well-known key barriers to energy efficiency investments. While in GreenLight most upgrades were self-financed by the partners, several projects were also funded through Third Party Financing (TPF) and implemented by ESCO.

GreenLight investments use proven technology, products and services which can reduce lighting energy use by 30% to 50%, earning Internal Rates of Return (IRR) above 20%. GreenLight upgrades have covered the range of energy-efficiency measures described on the GreenLight web site (<http://www.eu-greenlight.org/What-to-do/what1.htm>), e.g. replacing general lighting service incandescent bulbs or high pressure mercury lamps; installing occupancy linking control system or light flux regulators; etc. In many cases, the substitution of magnetic ballasts with electronic ballasts on an existing installation, also proved to be profitable.

Several upgrades were also undertaken which changed the complete lighting installation, including luminaries. Some partners somehow surpassed their GreenLight commitment. Energy saving are specific to each lighting installation, depending on the installed technologies, the operating hours, the occupancy pattern and other factors. Sometimes GreenLight upgrades can be very simple, as simple as commissioning the control system.

By joining GreenLight, the companies have made good business sense. They found opportunities that resulted in environmental improvements and increased profits (by reducing costs) at the same time. GreenLight partners have had direct benefits by saving money and in most cases improving working conditions by better lighting quality.

GreenLight partners have also had indirect benefits resulting from the growing attention of consumers and investors, which will increase their opportunities on the market. Their ability to deal successfully with environmental issues may be considered as a credible measures of management quality. This supposes however that "ad hoc" recognition and advertisement is given to their achievements: a point on which the European Commission and the National Contact Points put emphasis during the execution of the Programme.

During the last year, GreenLight public recognition has taken shape and the programme has gained public image. More and more partners have joined this initiative. With the enlargement of the European Community, the number of Partners increased significantly: Countries as Latvia, Czech Republic, Romania, Poland, etc answered with enthusiasm at the Programme National Contact points had several articles published in the business press and technical magazines. The Programme was also presented in various fairs and conferences across Europe.

The Commission introduced an European Award for particularly active and successful Partners and Endorsers. From the 2005 Award to 2010 Award the number of winner Partners is 57 and the number of winner Endorsers is 7. Endorsers are committed to offering technical support to registered Partners. Several lessons have been learned at all stages of the GreenLight process. At the marketing stage: often energy saving alone do not constitute a sufficient reason for companies to join GreenLight.

Public recognition benefits have proven to be effective additional arguments to convince them, including the fact to be seen as environmental "champions". Arguments related to indirect productivity increase would also be decisive if they could be scientifically demonstrated.

In the upgrading process, GL Partners need a user-friendly lighting audit procedure which they can easily follow to quickly identify which spaces can be upgraded and which cost effective measures can be applied. Complex material does not get used. Information gathered within GreenLight shows that there is a need to develop simple lighting quality assessment procedures, and lighting energy benchmarks for other spaces than offices (including average and best practice figures in W/m² or kWh/m²). The final decisions are often take at high levels and the information presented to the senior management as to be simpler and based on economics terms.

Finally, in the GreenLight progress monitoring, the main issue was to provide Partners with an extremely simple form to report on their achievements. This form currently consists of one page per facility. It contains a short description of the baseline and the post-installation lighting conditions.

The European Commission has been assisted in the implementation of GreenLight by the energy Agencies (or similar organisations) of 26 European Countries, which had a fundamental role in promoting the GreenLight at national and regional level.

GreenLight is one of many new initiatives trying to create effective public/private partnership to achieve societal and environmental benefits. GreenLight has proved to help its Partners save money and reduce pollution by increasing the energy efficiency of their lighting. GreenLight is changing the way organisations make decisions about energy efficiency, elevating decision-making to senior corporate officials.

An increasing number of companies and public entities have experienced GreenLight “win-win” opportunities and begun to view energy efficiency upgrades not as cost centres, but as profit centres. Positive results prompted most national energy Agencies to catalyse and spread further the programme implementation.

Given the success of the GreenLight Programme the European Commission is now using same concept (i.E. cost effective efficiency improvements in buildings) to the other building equipment and services (e.g. HVAC, office equipment, appliances) and to introduce the concept of energy management in the new European Green Building Programme.

The following pages are a selection of projects carried out by GreenLight Partners in period 2005-2009 and are listed in alphabetic order.

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93. Richard Behr % Co., GmbH – Ribeco group
94. Riga Graduate School of Law
95. Romanian Parliament
96. Rote Rathaus

97. Saule Birinius Pils SIA
98. Sci Ocean – Etude Guiraud & Bardet
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100. Sint-Niklaas – Stedlijke Open Bare Bibliotheek
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132. Vytauto Didžiojo Universitetas – VDU
133. VZW Sportdienst Kruishoutem
134. Wamex sp.Z.o.o
135. XELLA Porobeton d.o.o

ACRONI d.o.o.



Country:	Slovenia
Category:	Production Sites
Year:	2009



Acroni Jesenice is a Slovenian special steel manufacturing company. Through a TPF (Third Party Financing) project provided by EL-TEC MULEJ, Acroni Jesenice upgraded its lighting systems achieving substantial energy savings. Due to the new efficient lighting project, EL-TEC MULEJ contributed to achieve the goals of the GreenLight Programme: «To reduce the energy consumption from lighting throughout Europe, thus reducing polluting emissions and limiting the global warming and to improve the quality of working conditions while saving money».

The project concerned the introduction of new metal-halide luminaires equipped with low-loss magnetic ballasts for high-pressure mercury luminaires giving significantly better visual conditions (from 30–100 lux to 300–500). The payback time is expected in 5 years. The lighting electricity saving amounts to 7.681.196 kWh/year. The reduction of electricity use in the areas covered is estimated at about 54%

Aeroporto di Bologna

Country:	Italy
Category:	Airport
Year:	2008



The lighting system of the new **Marconi Business Lounge at Bologna Airport** has been designed and created according to the most advanced criteria. The total area upgraded in the GreenLight project amounts to 600m². During the designing stage, the aim was to obtain the highest quality and esthetical standards without jeopardising energy saving and the versatility of the system. To this purpose two applications were chosen: ABB i-bus EIB and DALI (*Digital Addressable Lighting Interface*). The ABB i-bus EIB system commands the lighting configurations of the several rooms, to suit the specific activities. The DALI lighting control system verifies the lighting levels in the several rooms, by comparing the real values and the requested values, and modulates each single source of illumination so as to deliver the correct lighting level. This enables to benefit from the external natural light, thus saving up to 50% of installed power, without any prejudice to the comfort of the rooms.

Results:

Lighting electricity savings: 16.100 kWh/year

Power reduction: 4,5 kW

Electricity use reduction: 38,3%

Energy cost savings: 2.800 Euro/year

Payback time: 3 years

Internal rate of return on the investment: 15 %

CO₂ Emission Reduction: 7,8 Mg CO₂/year

ÁGUAS DO CÁVADO SA



Country:	Portugal
Category:	Service and Office Space
Year:	2008
Award:	2010



Águas do Cávado, one of the awarded Portuguese companies, is a public drinking water treatment plant. They received the Green Light 2010 award for reducing the energy consumption of the exterior lighting at Areias de Vilar Water Treatment Plant of 39.4%. In 2005, as part of its Quality Programme, Águas do Cávado created an Energy Efficiency Group covering the whole company in which all its departments were represented. The aim was to optimise its overall energy consumption in relation to operating motors, illumination, fuel consumption, energy efficiency of buildings and to introduce renewable energy systems. With regard to lighting, Águas do Cávado installed a centralised energy management system that controls all its interior and exterior lighting circuits. The interior lighting system operates on the basis of a pre-programmed timetable. With regard to exterior illumination, the lighting area that involve the most energy consumption, Águas do Cávado changed all periphery lighting equipped with halogen lamps to high pressure sodium lamps, Also the tungsten halogen lamps were replaced by integral compact fluorescents lamps.

The saving achieved is of 160.925 kWh/y corresponding to 42,8 %.According to the energy saving impact, the CO₂ reduction potential is estimated at 80,50 t CO₂/year.

ASSÉDIC DES ALPES VILLE LA GRAND



Country:	France
Category:	Service and Office Space
Year:	2009



Assédic, acronym of *Association pour l'Emploi Dans l'Industries et le Commerce* (Association for Employment in the Industry and Trade), is an Agency of the French Government which collects and pays unemployment contribution. It is associated to the **Unédic**. It has an agency in Ville la Grand, the **Assédic des Alpes**. The project concerned an indoor area of 868 m² of surface: offices and reception/desk. The old installation lighting system was equipped with T8 26 mm diameter fluorescent lamps; the new project has T5 16 mm diameter fluorescent lamps. Power installed decreased from 9.5 kW to 4 kW. The light level rises up to 500 lux in offices and 350 lux in the reception area.

To optimise the natural daylight potential and with a view to the energy savings, all new luminaries were equipped with dimmable electronic ballasts functioning in connection with daylight and occupancy sensors. The efficiency of the Green Light Programme approach in this project also embraces the drastic reduction of number of necessary lamps (-30%) and its duration. This final data together with the saving costs for maintenance give as result a general saving of 76.48%. The successful experience of this pilot project gave a fundamental impulse to extend similar intervention to others Assédic Agencies.

AUCHAN ROMANIA



Country:	Romania
Category:	Retails and Supermarkets
Year:	2007



Auchan opened his first department store in Romania in 2006. This project in **Timisoara** is the seventh department store in Romania. Auchan is aware of the importance of sustainable development and gives a primary attention to technologies that permit energy saving and respect of the environment. In this project were chosen lamps E52 4x80W equipped with electronic ballasts. The number of luminaries has been strongly reduced (80%) with an energy savings of 40% and an increasing of luminance quality. The lamps are also equipped with aluminised reflector HRS which permits a very high efficiency. Below some data of comparison:

	Before intervention	After intervention	Difference
Number of luminaries	2100	374	- 82%
Life time	10.000 hours	16.000 hours	+ 64%
Total power installed	226kW	129 kW	- 43%

The lighting electricity use per year decreases from 1.159.000 kWh/y to 654.000 kWh/y, with a saving of 505.000 kWh/y. The yearly running costs decreased from 104.305 Euro to 58.825 Euro with a saving of 45.480 Euro. The total saving for Auchan Stores is of:1.788.728 kWh/y.

Banca Sanpaolo IMI

GRUPPO SANPAOLO IMI

Country:	Italy
Category:	Service and Office Space
Year:	2003
Award:	2005



From 2003, year of joining, **Banca Sanpaolo IMI** continued its effort in reducing energy consumption of electrical lighting system. From 2007 the Banca Sanpaolo IMI and BancaIntesa merged in the new Group Intesa SanPaolo.

In 2006, 67 Operative Points have been involved in new lighting installations or refurbishment of the old ones.

The total lighting electricity saving per year amounts to 1.090.077 kWh/year, with a yearly saving in running costs of 378.127 Euro. The payback of the investment is expected in 2,8 years. All the lamps installed have a performance near 100%, are equipped with magnetic ballasts and sensor device of presence and daylight. The energy saving amounts to 40% in comparison with the old baseline installation. Good examples of intervention were especially in the operative points of: Brebbia (VA), Cologno Monzese, Milano - Corso Garibaldi, Milano - Via Meda, Milano - Piazza San Babila, Milano - Piazza Carducci, Monza - Piazza Trento e Trieste, Nova Milanese.

In 2007, 56 Operative Points have been involved in new lighting installations or refurbishment of the old ones. The total lighting electricity saving per year amount to 905.014 kWh/year, with a total saving in running cost per year of 279.357 Euro. The pay back of the investment is expected in 1.8 year. As for 2006 all the lamps installed have a performance near 100%, are equipped with magnetic ballasts and sensor device of presence and daylight. Good examples of intervention of this year are the operative points of Milano - Via Manzoni, Milano - Viale Padova, Milano - Via Rizzoli.

Bełchatów City Office



Country:	Poland
Category:	Street Lighting
Year:	2009



Bełchatów is a town located in central Poland, 150 Km from Warsaw. In the recent years the town has become the junction for major national transit routes which makes it an important centre for the province. Moreover the Belchatow Coal Mine is the biggest opencast mine in Poland which gives to the town the status of the main industrial centre of the Region. The city have been invested by a project of renewal concerning the street lighting system in the perspective of a global modernization. One of those installation was the realization of the energy efficiency project for Sodawa street. The project included:

- adaptive electro energetic networks
- the installation of 150 W energy efficient luminaries equipped with a special device to dim the lighting flux during the night time.
- setting of the net of lighting cables.

From 2006 the Belthow City Municipality enlarged its activities to energy efficient street lighting and other open public areas, cost saving amounts to 81.136,16 Euro.

Belgian Small Municipalities



Country:	Belgium
Category:	Street Lighting and Sport Halls
Year:	2009

A big number of small municipalities in Belgium joined the Green Light Programme in 2009 with small but inspired projects with a very brilliant sustainability point of view. The projects are mainly sport centre, which demonstrates that this typology of facilities is very interesting for electricity savings investments.

Stad Genk

6 relighting projects of which the most important is a sport centre with a total investment cost of 426.445 Euro. In this case the refurbishment of the sporting centre permitted a yearly saving of 205.381 kWh. The installed power decreased from 21,000 kW to 57,500 kW with a reduction of number of luminaries from 136 to 209 and a saving of 158, 35 T of CO₂. The total investment of the 6 projects amounts to about 700.000 Euro and the energy saving obtained is of about 361.000 kWh/year. The payback time of the investments goes from 9 to 23 years.

Stad Bilzen

4 relighting projects (4 sport centres). The most important project concerns the Sporthal de Kimpel. The total investment cost amount to 46.405 Euro and permitted a yearly saving of 75.056 kWh. The installed power decreased from 25,344 kW to 13,440 kW with a reduction of the luminaries from 192 to 120 and a saving of 57, 87 ton CO₂. The total investment of the 4 project amount to about 147.000 Euro and the energy saving obtained is of 145.000 kWh/year. The payback time of the investments goes from 5 to 10 years.

Stad Bree

2 relighting projects, also in this case one is a sport centre. Here the investment amounts to 47.025 Euro with a payback of 5, 6 year. The yearly saving is of 13.129 kWh/year and the CO₂ ton reduction amounts to 10,12. The total power installed decreased from 14,100 kW to 7,664 kW.

Stad Beringen

2 relighting projects, also in this case one concerns a sport centre. Here the investment amount to 45.858 Euro. The yearly saving is of 30.364 kWh/year and the CO₂ ton reduction amounts to 23,41. The total power installed decreased from 18,130 kW to 10,540 kW.

Belgian Small Municipalities



Country:	Belgium
Category:	Street Lighting and Sport Halls
Year:	2009

Stad Peer

4 relighting projects, of which the most interesting is a cultural centre. In this case the refurbishment of the area permitted a yearly saving of 111.603 kWh. The installed power decreased from 50,109kW to 21,831 kW with a reduction of number of luminaries from 618 to 565 and a saving of 86,05 ton of CO₂. The total investment of the 4 project amount to about 223.400 Euro and the energy saving obtained is of about 207.983 kWh/y. The payback time goes from 5 to 12 years.

Stad Hasselt

8 relighting projects. The biggest one for the sport centre. Here the investment amounts to 83.738 Euro with a payback time of 7 years. The yearly saving is of 83.520 kWh and the CO₂ ton reduction amount to 64,39. The total investment of the 8 projects amount to about 355.000 Euro and the energy saving obtained is of 532.009 kWh/year, which is a very interesting result.

Bibliothèque Universitaire des Sciences Lyon



Country:	France
Category:	Educational Buildings
Year:	2008



The building of the **Bibliothèque Universitaire des Sciences Lyon 1** was constructed in 1960 and is a 5 floor construction. The project of refurbishment invested all the building.

The lighting was a very important subject: quality, comfort and energy savings were the goals. The new solution allows very good lighting system with only 63kW of total power installed. The level of luminance has been very much increased and improved, and the energy saving obtain is about 33%, thanks to the installation of daylight detector. The life time of the lamps is of 18.000h because of the new electronic ballast.

The total saving obtained with this lighting system is of 34%. The saving in running costs per year amount to 4.133 Euro.

Bic Conte



Country:	France
Category:	Production Sites
Year:	2007
Award:	2008



Société BIC S.A. is the world's leading manufacturer of ball-point pens, selling about 22 million pens and other stationery items every day. The intervention concerned the refurbishment of the lighting system in a production hall for precision mechanic. Goal of the project was to increase the luminance of the hall from 170 lux to 350 lux.

The 700 old lamps white painted reflector have been changed into new lamps with hammered aluminium reflector. All the luminaries have been equipped with electronic ballast and with a control of regulation depending on the effective daylight. The total power necessary to obtain the new level of lighting decreased from 98kW to 77kW, with a gain of 21%. The electricity consumption before the intervention was of 612.000kWh/year and after decreased to 336.000 kWh/year with a saving of 276.000 kWh/year (45,10%). The pay back is expected in 3 years.

Bloom s.r.o.

Country:	Slovakia
Category:	Services and Office Space
Year:	2008



The **Bloom s.r.o.** company focuses on office supplies and promotional printings. The project of this Green Light Partner concerned the refurbishment of lighting system of the offices.

The surface of the upgraded area is of 250 m² on 2000 m². The type of lamps installed before was an incandescent type with aluminised reflector. Today the lighting system is equipped with CFL pin-based aluminised lamp. The consumption before the intervention was 9.820 kWh/year; after is 5.820 kWh/year with a saving of 4.000 kWh/year.

The yearly running costs before were 1.666 Euro and the saving in is 833. The payback time is expected in 5 years.

BOSCH Aveyron Usine



Country:	France
Category:	Production Sites
Year:	2006



In Aveyron, France, **Robert BOSCH Factory** is the most important employer of this region with 2.144 workers. The Factory produces injection pumps and more for the biggest automotive industries. This Partner has decided to participate in this Programme in order to reduce the electrical power consumption in Europe, to limit the pollution and the green house effect. Conscious of the necessary upgrade of quality of the working environment, Robert BOSCH Factory has invested in new technology in order to guarantee the future of the world and a better quality life of next generations.

First order of business was a durable development using GreenLight approach.

The investment was dedicated to technical intervention on indoor area of Building 101 (8,50 m high). At first, 180 lamps, 2x58 W traditional ballasts fluorescent light reflector white lacquered, were set up for a total installed power capacity of 26 kW for 7.920 hours light on/year. Old lamps were durable for 8.000 hours. New 2x80 W suspended aluminium HRA reflectors, 6 m from floor level, have improved the lighting quality.

The total annual electricity consumption is decreased of 60%, from 198.000 to 79.200 kWh/y.

Maintenance cost was reduced by 57% thanks to the high quality of new materials.

Bücherhallen Hamburg



Country:	Germany
Category:	Educational Buildings
Year:	2009



The project is about a **public library in Hamburg**. The surface of the intervention is of 690 m². The lighting system is based on 50 luminaries with 2 x 54 W with daylight control. In the offices were installed luminaries with 3 x 14W also with daylight control.

The power installed, thanks to the intervention, decreased from 6,83 kW to 5,9 kW. The energy consumption before amounted to 20.496 kWh/year and after was reduced to 12.921 kWh/year.

The payback time of the investment is calculated in 5,6 years and the CO₂ emission reduction expected is 6,7 tons.

CAF d'ARRAS



Country:	France
Category:	Services and Office Space
Year:	2008



CAF d'ARRAS is a private service that uses public funds to develop helping actions for families and social politics.

Its goal in joining the GreenLight programme was to become an example for public institutions.

The GreenLight project concerns 3 office buildings for a total surface of 2.500m².

The energy consumption for electricity was of 147.914 kWh/year, after the intervention it was reduced to 74.656 with a saving of 110.480 kWh/year. The running costs decreased from 1.755 Euro/year to 877 Euro/year.

Both the savings in energy consumption and in maintenance costs are about 70% .

The illumination level was increased by 50%.

Due to the project, better working conditions and safety were ensured. The longevity and the good performance of the materials used give as a result the reduction of the maintenance frequency and of the environmental impact. The new light fixtures are based on presence sensors so that no lights remain anymore lit for 24/24 hours. Light is regulated according to the contribution of daylight.

Catholic University College of Gent



Country:	Belgium
Category:	Educational Buildings
Year:	2009



The **Catholic University College of Gent**, a.k.a. **KaHo Sint-Lieven**, is located in Flanders region (Belgium). The relighting project had been addressed to the so called “Instuif”, the meeting area for the students (where they eat, meet, study, relax and also organize events). The refurbishment intervention concerned new ceilings and wiring, new fixtures (electronic ballasts) and automation system for daylight harvest and presence detection. This technical action will constitute a demonstration project on efficient lighting for staff, students and visitors.

The total floor area, upgraded in 2008, is 591 m². The obtained savings were: 23.426 kWh/year of electricity and 5.564 Euro of running costs. The payback time is expected in 4,3 years. The real improvement is visible in the luminance: from less than 100 lux to 480 lux.

Centre de Dialyse du Béarn



Country:	France
Category:	Hospitals and Medical Centres
Year:	2009
Award:	2010



Awarded by the European Commission in 2010, the **Dialysis Centre du Béarn** achieved the amelioration of the comfort of patients in treatment and of the working team by a seven years effort in upgrading its energy system.

In July 2003, after ten months of work, almost entirely self-funded, the Centre inaugurated "The Triangle" deployed on 1.700 m² and devoted to the reception of patients and paramedics. In addition the logistics of the water disinfection was obtained. In a secure, bright, friendly, inviting and comforting place, 43 people can be treated at once.

The project began focusing on adapting the area to local environmental standards for medical centres; ecological and ergonomic equipment, rational use of energy sources. The optimization of lighting influences the behaviour of patients as colour therapy and good sound insulation.

A total of 12 million Euro have been spent on the construction, expansion and renovation. The installation of lighting Eco-Economic represented an additional cost of 70.000 Euro. Also photovoltaic panels have been installed. On the whole, the payback is estimated in 3,5 years for all administrative areas 2,5 years for care-areas.

CEVA Logistic



Country:	Belgium
Category:	Logistic and Transportation
Year:	2009



CEVA is the world's fourth largest "pure logistics company".

Its GreenLight project consists in replacing the existing lighting installations with new luminaries. By effect of the relighting, the level of energy consumption, uniformity and luminance was improved. The new luminaries are equipped with electronic ballast, TL5 lamps and aluminium reflector material. Movement sensors are also placed.

The number of luminaries decreased from 665 to 487. The total power installed also decreased, from 93.10kW to 46.75kW. Yearly energy cost amounted to 68.016 Euro. After the intervention is evaluated in 26.146 Euro. The yearly saving of energy is 365.837 kWh which corresponds to 278 tons of CO₂. The payback of the intervention is expected in about 2 years.

CINKARNA, Metalurško Kemična Industrija d.d.



Country:	Slovenia
Category:	Production Sites
Year:	2008



Established in 1873, **Cinkarna Celje** was originally engaged in metallurgy. After 1968 chemical processing became the Company's primary activity, and today its core business is oriented towards the production and marketing of titanium dioxide pigment. Today this Green Light Partner is one of the largest chemical-processing companies in Slovenia.

The intervention concerned the rolling mill area (1.255 m² on 105.000 m² of the factory).

The old 267 HP Mercury lamps with magnetic ballasts were substituted by 16 mm-diameter fluorescent, electronic dimmable lamps with aluminium reflector for a total number of 127.

The achieved saving is 70% (541.000 kWh/year). The whole luminary's power decreased from 440 kW to 232 kW. Payback is expected in about 1,2 years, one of the lowest among all the Green Light Partners.

City of Kalisz Oświetlenie Uliczne i Drogowe Sp.o.o.



Country:	Poland
Category:	Street lighting
Year:	2007



Oświetlenie Uliczne i Drogowe Sp. z o.o., was the first Polish company to implement an intelligent street lighting system (tele-management) in the city of Kalisz. Street lighting in Europe today is a mix of technologies that have been available on the market for the last 30–40 years. Tele-management of outdoor lighting provides a significant opportunity to save energy and decrease the environmental impact of outdoor lighting. A tele-management system enables the lighting system to automatically react to external parameters such as traffic density, remaining daylight level, road constructions, accidents or weather conditions.

Number of street light points before modernization: 159

Number of street light points after modernization: 79

Lighting electricity savings: 105.000 kWh/year

Reduction of electricity use covered: 48.4 %

Total running costs savings: 8.900 Euro/year

City of Kamień Pomorski



Country:	Poland
Category:	Street Lighting
Year :	2008



Kamień Pomorski, a town in the north-west of Poland, is the capital of Kamień County. It is close to Zalew Kamieński (Kamień Bay) and about 5 km from the Baltic Sea. The estuary part of the River Dziwna gives the town a direct link to the Baltic Sea. During the last 6 years in the city and Municipality of Kamień 3 modernization investments have been done: a new complex street light system, the lighting inside the Building of the City Hall and the Cathedral illumination.

Altogether the 114 luminaries have been replaced for a total electric power of 201.904 kW. The intervention decreased the luminary's total power to 114.134 kW. The annual energy consumption was reduced from 679.923 kWh to 402.232 kWh. For the next 3 years the Partner is planning another modernization of street light where the conventional ballast type luminaries will be replaced with electronic ballasts. In addition an intelligent lighting street system will be introduced. The relighting of the Chopin Housing estate will be involved too.

City of Kladno



Country:	Czech Republic
Category:	Street Lighting
Year:	2007
Award:	2008



Kladno is a city in the Central Bohémien region of the **Czech Republic**. It is located 25 Km North-West of Prague. It has a population of more than 110.000 people.

Since 2007 a general replacement of the lights has begun in the central streets of the city.

The lights ARC 80 fitted with 70W HPS discharge tubes have been used in replacement of the old 150W HPS discharge lamps. Therefore 87W at each light point have been saved with this measure.

A reduction of light maintenance costs has been also achieved by the use of aluminium lights with the double shielding DIP 66. These lamps compared with the plastic ones, are fully recyclable also after 30 years. Moreover these lamps guarantee stability of size through lifetime and better thermal conductance.

Thanks to this savings the investment of 20.000 Euro has 3,26 years pay back period. Net present value of the investment is 67.000 Euro and the internal rate of return is 20,61%.

The city of Kladno will save during the 15 years of the lamps lifetime 120.000 Euro or more, in accordance with the growing energy prices.

There were saved 49MWh/year due to the total replacement of 138 lights.

City of Klagenfurt am Wörthersee



Country:	Austria
Category:	Street Lighting
Year:	2008



This project concerns an energy efficient refurbishment of the central traffic artery of **Klagenfurt am Wörthersee**, called “the Ring”. When the Ring was broadened and restored, the public street lighting system was also upgraded to new technical standards. All of the existing switch points and cables were changed into new ones.

The project included 3 switch points and 37 lighting points, the intention of the refurbishment were: better light quality, higher safeness for the Ring users, an energy efficient solution. Instead of the existing mercury HP vapour lamps, new metal halogen steam lamps have been installed. The rating performance has been increased of 40%.

The result is a saving of 16.280 kWh/year and a saving in running costs of 1.600 Euro/ year.

City of Oslo



Country:	Norway
Category:	Street Lighting
Year:	2006
Award:	2006



During the past years one of the most advanced intelligent street lighting in the world has been built and tested in **Oslo**. The project "Intelligent street lightning" demonstrates that the energy consumed by street lightening can be reduced up to 70%. 9000 luminaries with dynamic street lights were installed. Each lamp is individually dimmed according to traffic, climatic conditions etc. During periods of low traffic volume or reflective snow cover, there is a minor illumination need and the system responds intelligently. In addition gradual dimming prolongs the life expectancy of lamps and equipment. Intelligent lightening reduces CO₂ emissions and saves money.

In 2006 the project received the European Commission's GreenLight award.

City of Warsaw Urząd Miasta Stołecznego Warszawy



Country:	Poland
Category:	Street Lighting
Year:	2008



Warsaw, Poland's capital is one of the fastest growing cities in Europe. It was one of the first municipalities to join the European GreenLight Program in Poland. The modernization of the street lighting will improve the image of the area and beautify the city. There are approximately 100.000 street light points and more than 1.750 lighting cabinets containing electric meters within the 18 districts of Warsaw. The total power of the installed lighting is over 20 MW and the annual consumption is approximately 90 GW/h. The outdated outdoor lighting installations use more energy as well as costing more. Energy consumption is being reduced by using new technologies and investments, and at the same time the historical character of certain areas of Warsaw is maintained. Al. Ujazdowskie Street is a good example of this kind of lighting renovation.

Number of street light points (SLP) before modernization: 159

Number of SLP after modernization: 215

Lighting electricity savings: 155.210 kWh/year

Reduction of electricity use covered: 54.6%

Total running costs savings: 13.146 Euro/year

Coca Cola - Grigny



Country:	France
Category:	Production Sites
Year:	2008



The re-lighting project concerned the bottling zone inside the **Coca Cola** factory in Grigny, France. The area is 2.800 m². The main purpose of the intervention was to decrease the lighting installed power. The project resulted in a significant reduction of the number of luminaries, an improvement of the life time of lamps and a very high level of luminance in the working areas if compared to the traditional solution. The energy saving is only of 11,6%, but the lighting level has been strongly improved: from a previous maximum of 100 lux (before the intervention) to a range from 300 to 600 lux. The maintenance costs have dropped by 75%. The visual comfort is much higher; the light level permits a good adaptation also in the night working hours.

Communauté Urbaine de Dunkerque



Country:	France
Category:	Public Building
Year of accession:	2007
Award:	2008



In the GreenLight project of **Urban Community of Dunkerque**, in France, all the indoor lighting fixtures are individually controlled thanks to a multi-sensor that integrate a daylight sensor, an infrared occupancy detector and an infrared remote control receiver.

Thanks to this system, the energy consumption is reduce by using automatically daylight, by switching off the luminaries when nobody activates the occupancy detector and by giving to the users the possibility to set the light level as they want with a remote control, in general it is lower that the normal set.

In final the power installed is only 1,8 W/m²/100lux. It has been possible to reach this figure thanks to the very high efficiency of the lighting fixtures, which use for their high efficient reflectors specific aluminium.

Comune di Piombino



Country:	Italy
Category:	Street lighting
Year:	2006
Award:	2008



The positive energy saving trend of the **Comune di Piombino** started in 2002 with the new efficiency policy of the public administration.

The program for the upgrading of public lighting systems, with a view to energy and economic savings while maintaining and ensuring optimal efficiency of night lighting for safety, was based on the installation of electronic voltage regulators on the lines, combined with high-pressure sodium lamps.

Although the number of lamps increased from 2002 to 2009 (from 3.671 to 4350), the relative annual consumption decrease (from 2.600 MWh to 2.400 MWh), thanks to the higher efficiency of the systems.

Currently is ongoing an experimentation of LED lights which should ensure a high degree of efficiency with a further saving of energy by about 20-30%.

COOP



Country:	Italy
Category:	Retails and Supermarkets
Year:	2001
Award:	2006



185 new stores have been opened or refurbished from 2001 to 2007 by **COOP**. All these interventions have been done in the framework of the Green Light Programme. The intervention on the lighting system done in this period gave as a result a total energy saving of 118 GW. The saving of CO₂ emission amounts to 66.500 tons.

From 2003, **COOP** started to invest in photovoltaic energy, with the first installation in the store located at Ponte a Greve, near Florence. Today are 11 the store buildings with photovoltaic panels, for a total power of 2.100 kWh.

The technologies implemented are:

- Compact fluorescent lamps
- 16mm. fluorescent lamps
- Ceramic metal halide lamps
- Electronic ballasts
- Dimmable electronic ballasts
- Automated control system for automated turn on/turn off of light according to time schedule, daylight, etc.

Dagda Town Council



Country:	Latvia
Category:	Street Lighting
Year:	2007



The GreenLight project consisted in substituting the old, obsolete luminaries (400 pieces) with new HP sodium lamps in the **Dagda Town Council**.

The power of the bulbs decreased from 400W to 80W. The ballasts were also changed from the magnetic high-loss ones to the low-loss type. All luminaries are equipped with aluminised. The electrical consumption before the intervention amounted to 512.000 kWh/year. It decreased to 76.800 kWh/year with a saving of 435.200 kWh/year.

Yearly running costs decreased from 29.170 Euro to 4.376 Euro, with an yearly saving of 24.795 Euro.

Danfoss, Sp.z.o.o



Country:	Poland
Category:	Production Sites
Year:	2009



Danfoss, Sp.z.o.o. is part of International Group Danfoss Denmark. Danfoss Group is a leader in development and production of mechanical products and controls (air conditioning, heating, high pressure system, etc.) The lighting in the new productive hall in Grodzisk Mazowiecki (Poland) is an example of the attention that the Group gives to sustainable development. The surface is about 6700 m². The system is equipped with lamps with electronic gear. 340 lamps are type 2xT5 54W and 120 lamps are 4xT8 18W.

Also other fluorescent lamp are used: 680 lamps type TL5 54W and 480 lamps type TL-D18W. The TL5 lamps used are a very good choice because of highest energy efficiency and lowest CO₂ emission compared to any other light source and are 100% lead free. Moreover they have less material, packaging, transport and recycling volume due to smallest product dimension (only 16 mm diameter). Also TL- Super 80 lamps are environmentally friendly, with the lowest mercury content in the industry and are fully recyclable. This lighting installation permits to save about 12 kWh/hour.

Decathlon Bucuresti

The Decathlon logo, consisting of the word "DECATHLON" in white, bold, uppercase letters on a blue rectangular background.

Country:	Romania
Category:	Retails and Supermarkets
Year:	2009
Award:	2010



Decathlon IULIU MANIU is located in Bucharest. The total surface of the store amounts to 4300 m². The energy consumption was reduced of 70% thanks to the new luminaries that have been installed. The lighting energy use per year amounted to 514.000 kWh before the intervention, after it decreased to 153.000 kWh with an energy saving of 361.000 kWh/year. The total power installed decreased from 165kW to 49kW. The new lamps are all equipped with electronic ballasts and aluminised reflector.

Decathlon Spain



Country:	Spain
Category:	Retails and Supermarkets
Year:	2009
Award:	2010



Decathlon refurbished 7 different stores in Spain.

One of this examples is the Valencia Store. The project involved an area of 7.000 m². The investment amounted to 50.000 Euro with a payback expected in 1,2 years. The energy consumption before the intervention was of 932,58 kWh. After, it diminished to 570,75 kWh. The total power installed decreased from 157 kW to 96,09 kW. The saving achieved amounts to 39.000 Euro/year.

The seven stores (Xanadù, Rosaleda, Parla, Onda, Huesca, Helva and Calatayud) saved all together 1.653.356 kWh/year.

The cost saving achieved is of 178.563 Euro/year.

Drom Fragrances International KG



Country:	Germany
Category:	Production Sites
Year:	2008



Drom Fragrances International KG creates fragrances for all the possible applications. It started as a family business in Munich, Germany, almost a century ago, and is currently managed by the family's third generation. Today, Drome has a lot of production sites over 40 countries. In addition to its daily business, Drome has also been exploring many visionary new roads for fragrances (video stations, slot machines, game consoles with fragrance adapters, fragrance seats for movie theatres, fragrant e-mails, etc). The GL project concerned the refurbishment of the light system of the **factory** in **Baierbrunn**.

The intervention consisted in the installation of a new lighting system in the production hall 3 floors using high efficient lights and reflectors that allowed both a reduction of the energy needs by 75% and an increase lighting quality for the workers together with a diminution of costs while operating. The 176 old lamps 215W/40W without reflector were replaced by 158 new lamps T8/58W with reflector. The project gave the following performance: electricity consumption before the refurbishment was 100.776 kWh/year and after the intervention it is 24.596 kWh/year with a saving of 75,59%.

The investment cost amounted to 25.000 Euro and the result of the saving cost is 7.500 Euro/year.

DSM Netherlands

Country:	The Netherlands
Category:	Service and Offices Space
Year:	2007
Award:	2008



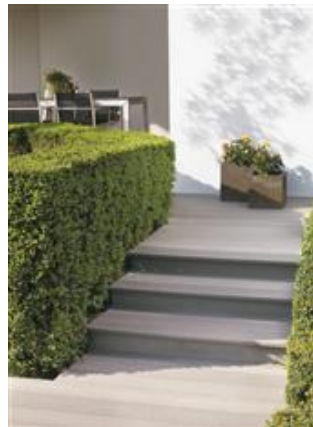
DSM creates innovative products and services in Life Sciences and Materials Sciences that contribute to the quality of life. DSM's products and services are used globally in a wide range of markets and applications, supporting a healthier, more sustainable and more enjoyable way of life. End markets include human and animal nutrition and health, personal care, pharmaceuticals, automotive, coatings and paint, electrics and electronics, life protection and housing. DSM has annual sales of almost EUR 8.8 billion and employs some 23,000 people worldwide. The company is headquartered in the Netherlands, with locations on five continents.

- Square meter covered: 250.000 m²
- Old T8 lamps with magnetic ballast and painted reflectors have been changed with T5 lamps with high frequency ballasts, specular aluminium reflectors and daylight linked control
- Savings: 60% or 7.000 Euro / year
- Before the intervention the energy consumption was of 58.359 kWh/year.
- Reduction of energy consumption per year (34.725 kWh/year).
- Payback time is expected in 6,10 years.

Dumaplast NV



Country:	Belgium
Category:	Production Sites
Year:	2007
Award:	2008



Dumaplast is a leading manufacturer and supplier of exterior PVC wall cladding and siding, PVC window boards and window shutters, as well as decorative interior wall panelling, waterproof shower and bathroom panelling, and lightweight ceiling panels.

The relighting project designed within the GreenLight Programme concerned the installation of energy-efficient lighting in several production halls of the company.

The aim of the project was: reduction of energy consumption, improvement of the lighting quality, improvement of the quality of working conditions and improvement of workers productivity.

As result of the intervention the total power installed decreased from 33.6 KW to 17,2 KW and the energy saving per year is of 122.041 kWh.

The cost saving amounts to 9.394 Euro/year.

Payback time is expected in 3.3 years.

Country:	Germany
Category:	Service and Office Space
Year:	2008
Award:	2010



Near Hamburg, Germany, the GreenLight Partner **e.on Hanse AG**, which is part of the *Environment Champions* Employee Awareness-Programme of **e.on AG**, has re-lighted the 25 years old electrical plant (luminaries for 6.500 m² indoor area) in its offices building: from the conventional electronic ballast 2x58W to efficient luminaries with light controls dependent that regulates and shut down the artificial light output in accordance with the level of natural light.

The old T8 fluorescent lamps were changed to the modern T5 35W/49W; the colour of the fluorescent lamps was changed from warm white 830 to 865 in order to create a daylight atmosphere.

Moreover, a movement sensor was placed to switch the light in relation to the presence of people in the ambiance. Before this intervention, the energy consumption was of 265.580 kWh/y. With the new systems there is an energy consumption savings of 159.348 kWh/y (60%).

Payback time is expected in 4 years.

EXOTERM-IT d.o.o



Country:	Slovenia
Category:	Production Sites
Year:	2008



The company **Exoterm - IT d.o.o** is located in Kranj, Slovenia. It has been a trading partner of the foundry industry and metallurgy for more than 40 years. The enterprise is one of the leading manufacturers and suppliers of auxiliary materials for foundries and steel industry in South-Eastern Europe.

In 2007, the company took a complete lighting renovation over a 2.260 m² area.

The intervention consisted in new 16mm diameter fluorescent tubes (T5) equipped with electronic ballasts, in substitution of the obsolete 26 mm tubes with magnetic ballasts.

The Partner divided whole lighting into: working places lighting, lighting for transport and lighting for warehouse places. In this way the Company not only achieved a significant energy saving but also improved lighting conditions.

Before the intervention the energy consumption was 86.240 kWh/year. After the intervention the energy savings were of 64.680 kWh/year (75%).

Payback time is expected in 2,5 years.

Focșani City



Country:	Romania
Category:	Street Lighting
Year:	2006



The project concerns the lighting refurbishment of the outdoor luminaries of this big commercial area in the **Focșani** town, over an about 600.000 m² area.

The old lamps, 2.905 in total, have been changed from incandescent type to HP sodium type.

The total power per lamps decreased from 400 W to 150 W. The old conventional magnetic ballasts have been changed with electronic ones.

The consumption before the intervention was of 5.089.560 kWh/year, and decreased after it to 1.908.585 kWh/year with a saving of 3.180.975 kWh/year. Cost savings were of 304.010 Euro. The pay back time is expected in 4,2 years.

Franz-Böhm-Schule Frankfurt am Main



Country:	Germany
Category:	Educational Building
Year:	2007



The project concerned the modernization of the lighting system in the sport hall of **Franz-Böhm-Schule** in **Frankfurt am Main**, Germany.

The implemented technology applied high efficient lamps and luminaries with electronic ballasts and differentiated control for training/competition. Motion detectors were installed in dressing room.

The electricity consumption before the refurbishment was of 70.000 kWh/year; after the intervention it is of 10.700 kWh/year. The total investment was of 38.000 Euro with a saving of 7.900 Euro/year.

Gates Europe nv



Country:	Belgium
Category:	Production Sites
Year:	2005
Award:	2006



The intervention consists in the introduction of a new lighting system for the braider room of **Gates Europe nv** company's building in Belgium.

The system is composed by high efficiency TL5 lamps and reflectors, OLC Optics (Omnidirectional Luminance Control with brightness control in all directions), 5, 7 and 9 pre-wired (2.5mm²) flat ribbon cable, "Clicks in seconds", flexible fit, electronic controls for further reduction of energy use.

Before the intervention the energy consumption was 190.196 kWh/year. After, it decreased to 97.000 kWh/year (52%). Payback time 5,20 years.

Maintenance costs are estimated in 27.845 Euro over 10 years (reduction from 3.138 to 842 lamps and replacements) with a cost savings of 2.785 Euro/year.

Gemeinde Diex



Country:	Austria
Category:	Street Lighting
Year:	2007



Diex is a community in the Austrian state of Carinthia.

This GreenLight little pilot project is a very interesting application in energy saving for street lighting. The idea to install a photovoltaic system to provide the street lighting was created because of the construction of a new road for the model "Diex south" in 2007. Diex, as the "sunniest village of Austria" set standards in the installation of new public lighting system. For the first time the new product "StreetSun" combined with LED-technology was deployed.

It is the first village in the world to apply this innovative system. This pilot project will show the today's possibilities of photovoltaic street lighting system. Moreover it ought to activate an educational process of awareness of the inhabitants and visitors. This project is the first step to become the first energy independent village by the use of solar energy.

The investment costs for the first six lamps including the mounting costs amounted to 19.000 Euro. Due to the installation of the new lighting system Diex can save 300 Euro of electricity costs per year. The battery has a life cycle of six years. The luminaries last for about 80.000 operating hours.

The change of the whole lighting system is scheduled in the energy-concept of the village and will be realized in accordance with the existing found.

Gemeinde Kahl am Main



Country:	Germany
Category:	Street Lighting
Year:	2009



The project concerned the refurbishment of the **City of Kahl's** street lighting system.

The implemented technology was: modern lighting system, high energy-effective optimum light-output, non-dazzling, equal-zero-light-emission, easy maintained design.

The electricity consumption before the refurbishment was 550.000 kWh/year; after the intervention is 374.000 kWh/year. The investment was of 250.000 Euro and the annual saving is of 38.000 Euro.

Gemeinde Wasserburg am Bodensee



Country:	Germany
Category:	Street Lighting
Year:	2008



Wasserburg am Bodensee is one of the three Bavarian municipalities on the shores of Lake of Constance.

The project concerned the refurbishment of all 460 light points in 2007.

The intervention consisted in changing the old high pressure mercury lamps to NAV (High Intensity Discharge lamps) ones which are high-efficient lamps; retrofitting of the existing double fluorescent tubes to one tube with reflector and insulation (around 230 luminaries); reduction of operational voltage from 220V to 200V by lumen control system.

115.906 kWh/year of energy consumption before the intervention were reduced to 75.390 kWh/year after it with an energy saving of 40.516 kWh/year (34,96%).

Gemeente Amsterdam Facilitair Bedrijf



Country:	The Netherlands
Category:	Public Buildings
Year:	2007
Award:	2008



The GreenLight project concerns **the town hall Amsterdam**, the building where the district council of Amsterdam has its seat. The mayor and aldermen, the council and various other committees assemble in the town hall. The mayor and the aldermen have there their offices. It is the meeting place for the local government and citizens. With a view to this, the town hall provides citizens with diverse kinds of services. Thus the municipal office for registry, the register of births, deaths and marriages, elections and military affairs are housed in the town hall. Furthermore, the town hall is the place where people can receive information with regard to everything that is happening in Amsterdam or can be expected to.

- Square meter covered: 58.615 m²
- Technologies implemented: specular reflector, high frequency, daylight linked control
- Old Situation Baseline - Total Power in Watt: 195.300
- New Situation with daylight linking – Total Power in Watt: 106.987
- Energy saving per office: 88 KWh (before:195 kWh, after 107 kWh)
- Costs savings achieved: 59.987,68 Euro / year



GKN Walterscheid GmbH

Country:	Germany
Category:	Production Sites
Year:	2007



The **GKN Walterscheid GmbH**, is a world's leading supplier of agri-technical driveline and attachment system.

It has successfully refurbished nearly 60% of its real estates, in which modernisation is reasonable. It is planned to refurbish all other buildings, in which the refurbishment is economically and ecologically feasible.

In 2006 the Green Light project concerned the implementation of technology: T5/T8 lamps with automatic light control, presence depending controlling and glare protection according to demand. The electricity consumption before the refurbishment was 600.000 kWh/year; after the intervention is 250.000 kWh/year. The total investment was 200.000 Euro with a saving of 45.500 Euro/year.

GlaxoSmithKline France



Country:	France
Category:	Services and Offices Space
Year:	2009



The project concerns the refurbishment of the lighting system in the building located at Marley le Roi, the **GlaxoSmithKline France's Headquarters**.

The intervention embraces an area of 4549 m². Aim of the project was to increase efficiency and to diminish the total power installed. The solution adopted permits the reduction of the maintenance costs by 47% and a very high quality level of luminance. All the new lamps are equipped with electronic ballasts. The luminaires Type T8 26mm diameter fluorescent have been changed into T5 16mm diameter fluorescent. Daylight and occupancy detector increase the efficiency of the system and the energy saving. The total lighting installed power decreased from 70 kW to 46 kW. The total saving cost due to the intervention amount to 63%.

Hiller Logistik GmbH & Co. KG



Country:	Germany
Category:	Logistic and Transportation
Year:	2009



Hiller Logistik GmbH & Co. KG, in Lüneburg, Germany, is an important firm in the sector of logistic, storage and transport. The new Logistic Centre, the main protagonist of the project of relighting (8.500 m²), reduced the energy consumption from 82.582 kWh/year to 30.279 kWh/year which corresponds to an energy saving of 52.303 kWh/year. A result that is obtained with an investment cost of 55.000 Euro.

The old light system was substituted by fluorescent lamps in order to have a better constant lighting. A daylight based control was placed because of the presence of many row windows in the building.

ING Real Estate



Country:	The Netherlands
Category:	Services and Office Space
Year :	2008
Award:	2010



ING Real Estate Investment Management Netherlands (ING REIM NL) has been awarded with the 2010 GreenLight Award. ING REIM NL was also awarded for its sustainable lighting concept for new projects Cross Towers (Amsterdam) and DC Posthorn (Tilburg). Energy consumption in lighting was reduced by 70% (average). The objective is to reduce the energy consumption from indoor and outdoor lighting throughout Europe, thus reducing polluting emissions and limiting the global warming. It also aims to improve the quality of visual conditions, while saving money. By participating in the GreenLight Programme, ING Real Estate Investment Management shows that they respect the environment and support sustainability. In the Netherlands the European GreenLight Programme is supported by AgentschapNL.

The baseline lighting was equipped before the intervention with TLD 1x58W and TLD 2x36W conventional . The post installation lighting is equipped with HF lamps with electronic ballasts ,daylight linking and time scheduling system.

The energy consumption was 1.188.683 kWh/year and decreased to 373.454 kWh/year after the intervention giving an energy saving of 815.229 kWh/year (68,58%).

Payback time is expected in 3,5 years.

Istituto Superior de Engenharia do Porto



Country:	Portugal
Category:	Educational Building
Year:	2007
Award:	2008



The **Instituto Superior de Engenharia do Porto (ISEP)** or Porto Superior Institute of Engineering is a public polytechnic higher learning and research institute of engineering, located in the city of Porto, Portugal.

ISEP has 8 departments and one section, with an emphasis on applied science and technology.

All the old 26 mm. diam. fluorescent lamps have been changed into CFL pin-based one with electronic ballasts and aluminised reflector or into 16mm. Diam. fluorescent type.

The intervention is over an area of 2.900 m². Before the GreenLight project the energy consumption was of 101.717 kWh/year. After the refurbishment this Partner saves 54,26% of energy consumption (55.194 kWh/year).

Payback time is expected in 6,75 years.

Ixon Kerkompetenz Logistikimmobilien GmbH

IXOCON
Core competence in logistics real estate

Country:	Germany
Category:	Logistic and Transportation
Year:	2009



This GreenLight Partner **Ixocon** represents one of the divisions of Buss Group which developed since the mid-90s logistics properties. Ixocon designs, implements, finances and manages logistics real estate and industrial parks. They create facilities on the “green field” or acquire and revitalize existing properties. With an area of approximately 405.000 m² in 19 locations, Ixocon is a leading provider of distribution facilities in Germany.

Old Situation: 186 High Bay luminaries 1x400W, installed power 86 KW, LENI 6,7 KWh/m²/year, installed power/m² 2,96W, specific installed power: 2,74W/m²/100lux

New situation

222 Industrial luminaries T5 with aluminium reflector 4x80W (with an efficiency of 99%), installed power 45,8 KW, daylight control by applying 1 daylight sensor ELS per luminaries, LENI 3,2 KWh/m²/year, installed power/m² 2,23W, specific installed power: 1,8 W/m²/100lux, reduced CO₂ 45,6 ton/year.

The energy consumption decreased from 6,7 kWh/m²/year to 3,2 kWh/m² /year.

Kaunas District



Country:	Lithuania
Category:	Street Lighting
Year:	2008



Kaunas District is a geographical centre of Lithuania. It comprises an area of 149.500 hectares around Kaunas, the second largest city of Lithuania. There are 23 sub districts.

This GreenLight Partner's project financed 100% by the budget of Kaunas District Municipality, consisted in the replacement of the existing luminaries by new efficient ones with high pressure sodium bulbs. Kaunas District has replaced 2.771 luminaries. The electricity consumption after the refurbishment shows a very significant decrease (-68%).

Kaunas Municipality



Country:	Lithuania
Category:	Street lighting
Year:	2007
Award:	2008



Kaunas with nearly 400.000 inhabitants is the second city (after the capital Vilnius) in the country. Kaunas City Municipality joined the GreenLight Programme in 2007 and is one of the winners of the GreenLight Awards 2008. The municipality carried out the “Modernization of the Street Lighting of Kaunas City” project, with the following reported benefits:

- Reduced total capacity of the installed lighting system from 5.604kW to 3.014kW (54%).
- Reduced the power of illuminators from 240W to 130W (54% for every illuminator).
- Reduced annual electricity consumption for lighting from 20.969 kWh to 11.778 kWh (56%).
- Significant increase in the quality of the lighting.
- Annual expenses for street lighting reduced by 56%.
- Modernising Kaunas City street lighting reduced CO₂ and other emissions during electricity production.
- Local companies carried out the work of the project therefore the level of employment increased.

Kautex Textron



Country:	Germany
Category:	Production Sites
Year:	2006
Award:	2008



Kautex Textron GmbH is a company with more than 5.000 employees in 32 cities worldwide. It provides plastic packaging and fuel tanks.

By energy performing contracting in nearly 79% of their real estates, where lighting modernization was reasonable, the company has achieved energy savings of 56% by the investment of 650.000 Euro.

In 2007 the refurbishment of remaining areas was carried out.

A further 250.000 kWh/year electricity consumption have been saved. About 55% of the electricity consumption of all cost effective real estates have been saved.

Technology implemented is the following: T5/ T8 lamps, automatic light control, presence depending, glare protection according to demand.

With an efficient lighting system Kautex saves 1.750.000 kWh/year, 227.500 Euro/year, and 1,050 t CO₂/year.

IKEA



Country:	Norway
Category:	Retails
Year:	2006



Between 2004 and 2006, a new **IKEA** store will gradually be built at Slependen in Oslo Norway. The old store at the same location will gradually be demolished as new sales areas become available. Of an existing area of 23,500m², only 2200m² will remain when the project's done. The new store will have an available area of 32,500m².

All the sale areas have been calculated to keep an illumination level of 300 lux during opening hours. Outside opening hours / during cleaning and maintenance, only 1/4 of the base lighting luminaries will be switched on, giving an average luminance of 75-100 lux. This is in accordance to the recommendations from the Norwegian lighting council (Lyskultur). The base illumination of all the sales areas comes from fluorescent tubes. This means energy efficient, even, correctly coloured and glare-free lighting.

In the showroom and the market hall 1x35W T5 luminaries with double parabolic raster and an efficiency of 76% have been used. The T5 type was chosen for maximal light output considering the location and temperature.

Single-tube luminaries were chosen to boost the luminaries efficiency. Double parabolic asters also add to the efficiency and prevents glare. Narrow beam 2x35W T5 luminaries have been chosen for the self-serve area. The luminance at working level between the shelves is at 200 lux. This is slightly

more than what is recommended. The new store at IKEA Slependen is fitted with a highly customized lighting system, consisting of energy efficient luminaries combined with intelligent light control.

Landeshauptstadt München Baureferat HA Tiefbau



Country:	Germany
Category:	Public Building
Year:	2008



This GreenLight Partner in Germany, the **Building Department of City of Munich**, participated in GreenLight Programme with a modernization of street light system realized during 2007.

The total area upgraded amounts to 8.030.220 m². The old outdoor no reflector luminaries (132W or 58W 26mm diameter fluorescent and 124W HP Mercury) were replaced with aluminised 72W or 38W 26 mm diameter fluorescent and 70W CFL pin-based lamps.

Payback time is expected in 2,71 years.

Le Furet du Nord



Country:	France
Category:	Retail
Year:	2007



Le Furet du Nord is a very famous book shops. Today is part of the group HDS, but still keeps its original name, famous all over France. The Partner joined the GreenLight Programme with two projects.

Project 1

The surface of this bookshop is 2.150 m². The old T8 lamps have been changed with the new T5 lamps with aluminised reflectors. The electricity consumption before the intervention was 184.080 kWh/year and after the intervention decreased to 49.280 kWh/year with an energy saving of 134.800 kWh/year. The reduction of power installed is 68%. , the number of lamps was also been reduced of 68% and the lighting fixture of 85%. Light level raised by 100%.

Project 2

The surface of the shop is of 1.806 m², In this case, with a similar lighting refurbishment, the consumption before the intervention was of 185.181 kWh/year and after was reduced to 59.592 kWh/year with a saving of 125.589 kWh/year. Also in this case the installed power and the number of luminaries was reduced with lower maintenance costs and impact on the environment.

Lek d.d. (Sandoz) Proizvodnja Mengeš



Country:	Slovenia
Category:	Production Sites
Year :	2007



Lek, in Mengeš, Slovenia, is one of the pillars of leading world generics company Sandoz. It operates as a global development centre for products and technologies and as a global manufacturing centre for active pharmaceutical ingredients and medicines.

It has also a competence in the development of vertically integrated products and in biopharmaceutical ones. It works also as a supply centre for the markets of CEE, SEE and CIS.

The GreenLight project of the company concerned the renovations of the lighting system. The refurbishment consists in installing 16 mm diameter fluorescent tubes (T5) equipped with electronic ballasts, instead of the old 26 mm tubes with magnetic ballasts.

The total number of luminaries amount to 3.073. The previous consumption was of 1.892.381 kWh/year, after the refurbishment decreased to 1.729.873 kWh/year with a saving of 162.508 kWh/year. The payback time is expected in 3-4 years.

Linde Gas a.s.



Country:	Czech Republic
Category:	Production Sites
Year:	2008



Linde Gas a.s. is a leader in the international industrial gases markets, providing compressed, bulk, special and electronics gases, as well as chemicals for many industry fields. In the framework of the energy saving project all the light sources in the main machinery room were replaced. The old system for a total floor area of 22.000 m² was equipped with incandescent lamps (avg.180W per piece) and HP sodium lamps (400W).

In the new system they chose CFL self ballasted lamp (33W and 100W).

This is a case of a limited investment , 7.220 Euro, with a big result on energy saving: 84,09%.

The payback time is expected in 6-7 months, a very short time.

Ljubljanske Mlekarne, d.d



Country:	Slovenia
Category:	Production Sites
Year	2008



The Company **Ljubljanske Mlekarne, d.d** is the leading dairy in Slovenia. Through its product line (cheese, ice cream, etc.) the company has the biggest market share in Slovenia.

Its objective is to introduce new technologies and products in accordance with environmental protection principles. It has three production sites (Ljubljana, Kocevje, Maribor).

The whole renovation consists in changing the old 26mm. tubes with magnetic ballasts with new 18mm. fluorescent tubes T5 equipped with electronic ballasts.

The consumption before the intervention was of 1.565.664 kWh/year, after became 1.300.735 kWh/year with a saving of 264.929 kWh/year (energy saving of about 17%).

Payback time is expected in 4 years.

Lug Light Factory Sp. z.o.o.



Country:	Poland
Category:	Production Sites
Year:	2008



The **Lug Company** is one of the biggest industrial and decorative frame manufactures of Poland. The Company's offer encompasses a wide range of exterior frames for building illumination, lighting gas stations, street or parking lots. Interior frames have an application in commercial halls, office, shopping arcades and markets. LUG joined the Green Light Programme with a project for its new headquarters, an innovative manufacturing-storage-office complex, built in 2008. It is a completely new investment and because of this the solutions adopted are not comparable with previous data of energy consumption. The new lighting system is based on energy saving technologies (electronic ballasts and energy-saving fluorescent lamps T5). The submitted data of energy saving are obtained by comparing the conventional lighting with the innovative system installed in the new building.

They estimated an energy saving of 174.825 kWh/year with an energy cost saving of about 21.377 Euro.

Payback time is expected in 3 years.

The total investment cost of the project has been of 63.042 Euro.

Mairie d'Haubourdin



Country:	France
Category:	Public Building
Year:	2008



The **town of Haubourdin** is located 7 km from Lille and 226 from Paris, and has an extension of 531 hectares. The main purpose of the Administration of the town is to find the better balance between economical development and respect of the environment. The first project that was realised for the GreenLight programme concerned the extension and the refurbishment of the **Hotel de Ville**, specifically the offices of the building complex. The new lamps installed are equipped with electronic ballasts. The old level of lighting, 270 lux, increased to 520 lux improving the work conditions. The luminaries have aluminised reflectors HRA which increase the lighting performance of 85%. Because of this the numbers of lamps have been reduced by 23%. The power installed decreased of 55% from 24.8 kW to 11 kW. The long time lasting and the performance of the materials allowed a reduction of the frequency of the costs of maintenance, improved the public counts and reduced the impact on the environment.

The installation cost and the lower consumption lead to a renovation almost immediately profitable.

The electricity consumption before the intervention was of 48.000 kWh/year and after was 22.000 with a saving of 26.000 kWh/year.

Marktgemeinde Gössendorf



Country:	Austria
Category:	Street Lighting
Year:	2008



A modern new street lighting system was planned along the highway LB73 and LB312 in **Gössendorf**, because of the bad condition of the 30 years old previous system. Also a new continuous pavement was build up. A tender was made for the new pavement and the new lighting system and electricity supply. 171 light points with 100W sodium vapour lamps got installed (with a connected wattage of about 19,7 kW). The lamps (degree of protection IP66) guarantee a maintenance rate of 4 years and longer. Also a monitoring system was installed to help maintenance. This system informs the central station about every breakdown and lamp blackout over a GSM modem. The circuit time points are optimised with an astronomic clock timer in combination with a twilight switch. The new 35W metal halogen high pressure lamp produce, in the decorative pendant lamp, two times more light than the 80W ball lamps, but with a 45% less energy demand costs. The maintenance costs (because of degree of protection IP66) diminished the change of the lamps (about every 3,5-4 years). The cleaning of the lamps is not necessary because of the better leak tightness. The inhabitants are very happy with the design and the light action. This lighting system will be installed in every new or refurbished street. An energy demand reduction of about 1,06 MW/h, ca 42.300 kW/h per year, is expected in the next 25 year . This corresponds to a reduction of 700 tons of CO₂. The overall consumption is 68.000kW/h per year.

Marktgemeinde Grafenstein Primary School



Country:	Austria
Category:	Educational Buildings
Year:	2007



The renovation of the 1.949 m² of **Primary School in Grafenstein** aimed to revitalise the building envelope optically as well as preventing accidents due to the old heater system. Furthermore the primary school was intended to become an energy efficient building, which was achieved by the insulation of the building envelope, the exchange of windows and the replacement of the old heating system. For this reason, this Partner decided to participate both in the GreenLight Programme and in the GreenBuilding Programme.

These measures have accounted for a reduction of the heat energy demand of 46%. The energy used for electricity is of 37.000 kWh/year. The next step will include a renewal of lighting system towards energy efficient light components which will lead to a further energy saving of 53%.

Marktgemeinde Maria Saal



Country:	Austria
Category:	Street Lighting
Year of accession:	2007



For the intervention in **Marktgemeinde Maria Saal**, the target was to improve the light quality and to reduce the energy consumption and maintenance costs at the same time. The implementation of the improvement proposals led in the energy-monitoring-report was undertaken by the local company for electrical installations. The new luminary are equipped with an optic reflector. To control the closing time and the opening time astronomical switches have been installed instead of the inexact switch.

The existing angular candelabra lamps with 4xLL 18 and 1x HQL 80W were changed with new "Pilz" lamps with 1xNAV 50W. The existing umbrella lamps with 1x HQL 80W have been changed with 1 x NAV 50W. Existing lamps with 1 x HQL 80W were substitute with 1 x NAV 50W. Electronic ballasts were changed for the new disposal NAV 50W. The total installed switch point amount to 16 and the total light spots to 282. The energy saving per year is of 2.541 Euro and the saving per year on maintenance is 4.355 Euro. The total reduction of costs per year is of 6.989 Euro.

Marktgemeinde Semriach



Country:	Austria
Category:	Street Lighting
Year:	2009



The bad maintenance condition of the old, free shining multi-flame top lamp and the resulting high running costs of the street lighting were the reason for the need of action in **Semriach**. In 2007 the refurbishment was decided, and carried on step by step. The lighting concept divided the community into lighting zones: the main square - with old mercury vapour lamps - and its surroundings have been equipped with decorative lamps, the main street and the peripheral areas with technical lamps with conic steel tube pylons. Modern high density lamps (protection degree IP66) with faceted mirror optic, sodium vapour lamps and optimised regulation were used to allow maintenance intervals of 4 year or longer. In the city centre daylight regulation permit a reduction of 30% of energy use. From this measures about 17.300 kWh per year can be saved. Maintenance costs are reduced of about 60%. Because of the ongoing measures it will be possible to save 1.289.900 kWh within the next 25 years. That accord to a reduction of CO₂ emissions of about 866 tons.

Mc Donald's Belgium



Country:	Belgium
Category:	Hotel and Restaurants
Year:	2008



All over Belgium, a relighting of the **Mc Donald's Belgium** kitchens was executed in all the 57 restaurants with a result on energy savings of about 43%. For the new luminaries high efficacy-long life lamps equipped with electronic gear were chosen. The number of luminaries could be decreased thanks to the higher luminance that was achieved.

This GreenLight project concerns the Restaurant in Pegasus Park in Diegem.

The area upgraded is of 4.674 m². The number of lamps decreased from 1.500 to 1.250. The total energy saving amounts to 383.688 kWh/year. Cost saving is of 102.998 Euro. Pay back time expected is of 1,8 year.

Médiathèque de Bourg-lès-Valence

La Passerelle
MÉDIATHÈQUE

Country:	France
Category:	Educational Buildings
Year:	2007



Bourg-lès-Valence is located just northern Valence and has a population of 19.000 inhabitants. The new **Médiathèque** is part of a general renewal project of the town. The building has a surface of 2000m², the rooms are lightened 10 hour a day. Main purpose of the project was to obtain a very good comfort, low cost of maintenance and high energy performance. The number of lux increased from 300 to 500. In order to obtain this result the solution installed luminaries with aluminium reflector. The installation of lamps T5 equipped with electronic ballast and 16mm tubes permitted the decreasing of the installed power (not more than 2,68 W/m²). The electricity saving is about 31,5%. The maintenance cost is reduced of 45%. The number of the lamps is also reduced and the work conditions have generally improved.

Médiathèque Lille



Country:	France
Category:	Educational Buildings
Year :	2006



The intervention concerned the **Médiathèque of Lille**. The total surface is of 921 m². The old T8 lamps have been changed with the new T8 technology, with aluminised reflector and daylight detector. The light level and the visual comfort have been improved, which is essential in a médiathèque. The new installation is also consistent with the European law EN 12464. The maintenance costs are lower than previously and thanks to the materials employed the life time is much longer. The power installed was reduced by 54%, the maintenance reduced by 40% and the light level improved of 11%.

Consumption before the intervention was 32.094 kWh/year, after it decreased to 10.224 kWh, saving is 21.828 kWh/year.

Yearly running decreased from 3.205 Euro to 1.022 euro, with a saving of 2.183 Euro.

Mercator d.d.



Country:	Slovenia
Category:	Retails
Year:	2009



The **Mercator d.d.** is one of the most largest and most successful commercial chains in South-eastern Europe; it is the leading commercial chain in Slovenia and it is rapidly becoming an established chain in the markets of Serbia, Croatia, and Bosnia.

Mercator built a new shopping centre in Bled, Slovenia, with an indoor surface of 6.600 square meters. As lighting system (in average : 800-1000 lux, 15-20 W/m²) represents the largest share of electricity consumption (over 70%), it has been planned to integrate energy efficient lighting system according to best available technologies (also including solar techniques such as solar tubes). The energy saving expected is at least 10-20%, with an estimated lighting electricity saving of about 70.000 kWh/year. The payback of the investment is expected in 3 years.

Městská Část Praha 2 Urad Mestske casti Praha



Country:	Czech Republic
Category:	Public Buildings
Year:	2009



The project consists in the lighting of the new building of **Municipal House Praha 2**. The construction of the new building enables the existing neighbouring ones to be interconnected into a whole unit. The original building consisted in three facilities, which were connected but had separate energy supply points. Before the intervention the lighting consisted in 375 luminaries, fluorescent as well as incandescent. Total power installed amounted to 60 kW. These lamps, which were rather dirty, were covered with plexi-glass. The lighting was not conforming to CZ norms for work places. The electricity consumption before reconstruction reached 240,5 MWh/year, of which lighting 55,4 MWh/year (19%). In the reconstructed building there are 1.750 luminaries with a total consumption of 92.151 kWh/year (2006). This consumption represents 17% of total energy consumption. The incandescent bulbs are placed in bathrooms, historical chandeliers and wall lamps. Fluorescent tubes of three different lengths are placed in the big ceiling, with aluminised reflector and grid. The CFLs are placed in wall lamps. The old and new lighting systems differ significantly. The difference is in the size of the building (it grew by 1/3 after the construction), but also in the lighting quality of the system. Although about 110 new employees work now in the building, the lighting quality has improved and the electricity consumption per area and worker is 36% lower.

Metrorex, s.a.



Country:	Romania
Category:	Public Transports
Year:	2006
Award:	2008



The **subway transport system of Bucharest** has been in operation since 1979. Now the subway is being extended and existing installations are being modernized. Taking in mind the permanent use of the lighting system, the subway is an important electricity consumer. The GreenLight plaque has been placed in every metro station in the city of Bucharest. A total of 93.472 lamps of different types (38mm-diam.fluorescent and CFL self-ballasted) have been replaced with 82.300 low consumption lamps with magnetic low-loss ballast and aluminised reflector.

This has reduced the total installed power for lighting by 731.162 kW (23.3%) and saves 5.100.000 kWh/year of energy. The pay back period related to the value of energy saving is expected in 2 years.

The yearly running cost have been reduced by 13%.

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

According to the energy saving impact, the CO₂ reduction potential is estimated at 2.473 tCO₂/year.

Ministry of the Environment of the Czech Republic



Country:	Czech Republic
Category:	Public Buildings
Year:	2007



The **Ministry of the Environment of the Czech Republic** joined the GreenLight Programme in 2008. A highly efficient and most update system of lighting were installed in the Minister's office and in the meeting room. It is not only linked to occupancy and to the movement of people in the room, but also to the daylight. It also allows the colour of the light to be changed. The rest of the building (offices, corridors, as well as the entrance) are equipped with compact and linear fluorescent light bulbs.

The intervention concerned an area of 14.314 m². The annual consumption in 2006 amounted to 887.335 kWh.

Compared to an old lighting system equipped with incandescent lighting, the total electricity consumption in the Ministerial building is almost 70% lower.

Some 2,5% of this consumption is covered by solar photovoltaic panels.

Municipality of Dobrich



Country:	Bulgaria
Category:	Street lighting
Year:	2008



The **City of Dobrich** started its energy efficiency activities in 2000 with a detailed audit of the current state of the entire street lighting system. In 2001 a project for the energy efficient reconstruction and modernization of the street lighting system was developed. The aim of the project was to replace the mercury lamps with high pressure sodium lamps and compact fluorescent ones. Upgrade of the street lighting control system was also envisaged, as well as the installation of two-tariff electric meters. In the period 2003-2005 the municipality carried out the project "Energy Efficient Reconstruction of the Street Lighting System".

In parallel, in 2003-2007, the municipality designed and built new street lighting for the city districts and the industrial zones in which it was not available until then.

After the measures were implemented the following achievements were reported:

- Upgrade of the illumination level: 95%.
- Energy savings of 2.819.640 kWh/year and cost savings of 91.400 Euro/year.
- Introduction of centralized control street lighting system.
- Total number of new lighting fixture assemblies with high pressure sodium lamps: 6.450.
- CO2 emissions reduction: 3.798 t/year

Municipality of Gorna Oryahovitsa



Country:	Bulgaria
Category:	Street lighting
Year:	2007



The **city of Gorna Oryahovitsa** is situated in North-Eastern Bulgaria. The project goal is an overall reconstruction of the street lighting system in the city of Gorna Oryahovitsa and reduction of energy costs through implementation of energy conservation measures.

It envisaged two main groups of measures for energy efficiency improvement:

- replacement of the existing luminaries and lamps by more efficient ones
- introduction of a centralized system for street lighting control of the night and semi-night operation.

The project was implemented in the framework of the Energy Efficiency Programme of Gorna Oryahovitsa Municipality. It was financed with equity funds of Gorna Oryahovitsa Municipality. The payback period of the project is 1.8 years.

The results of the refurbishment are :

economical savings: 133.230 Euro/year

energy saving :2.778,380 kWh/year

Municipality of Lom



Country:	Bulgaria
Category:	Street Lighting
Year:	2008
Award:	2008



Lom Municipality is situated in North-Western Bulgaria and is the second biggest municipality in Montana District. The total area amounts to 323.894 km² with population of 37.078 inhabitants. The project covers 129 streets and 4 public parks. A total of 1.639 street and 103 park luminaries and lighting fixtures have been replaced by lighting assemblies with high pressure sodium lamps. It was financed by means of an interest-free credit of 234.230 Euro from the Enterprise for Management of Environmental Protection Activities at the Ministry of Environment and Waters. The principal measures to improve the energy efficiency of the street lighting system in the city of Lom are the followings:

- Replacement of the luminaries with mercury lamps by luminaries using high pressure sodium lamps with adequate capacity and guaranteed optimum light distribution, maximum energy efficiency, longer lifecycle and sufficient degree of protection.
- Optimization of the street lighting operating mode with the introduction of modern centralized ON/OFF switch control.
- Two-tariff reading of electricity consumption. This measure is not an energy conservation measure; however despite the currently applied tariff for street lighting, it leads to cost savings and has a short payback period. This is the reason why it has been proposed for use in all transformers.

The project had a very positive impact on the environment, the crime rate was reduced and the traffic safety was improved. It also afforded an opportunity for the local administration and the experts, involved in the project implementation, to improve their skills. The energy consumption savings are 1.720 MWh/year and the cost savings amount to 107.730 Euro. The expected simple payback is two years.

Municipality of Munich Main department of civil engineering



Country:	Germany
Category:	Street lighting
Year:	2008



The **Main Department of Civil Engineering in Munich** follows the aim of reducing consumption of energy and carbon dioxide in its area of responsibility for more than 20 years, through the installation of low-energy lamps and power reducing system. The project for the GreenLight Programme concerns the installation of high energy reflectors and electronic ballasts instead of conventional ballasts in street lightings. Conventional bulbs have been changed with low energy ones and power reducing gears have been installed for the night period. In 2005 the consumption was of 32,3 MWh/year and in 2008 decreased to 31,3 MWh/year with an energy saving of 1 MWh/year. The Municipality of Munich is looking forward of reducing energy and carbon dioxide consumption by 50% within 30 years until 2020 and it is interested in sharing experiences with other Municipalities who set themselves a similar goal.

Municipality of Pabianice



Country:	Poland
Category:	Street lighting
Year:	2009



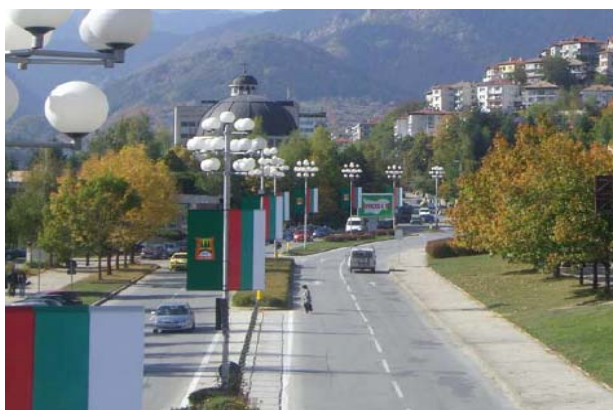
Pabianice is one of Poland's most ancient town in the central part of the country. The Municipality upgraded the 78% of existing luminaries and the light sources on the public roads, places, squares and parks in borders of the Commune: mercury lamps were replaced with modern and more efficient sodium lamps. This project concerned the exchange of 4.566 pieces of luminaries. The investment permitted to refurbish all the lighting system and the energy savings costs achieved was of 49%.

The power installed before the modernization was 1.266,1 kW; after it became 615,5 kW with a saving of 650,6 kW. Thanks to the decreasing of the installed power the waste of GHG emissions will get smaller. In fact one of the priorities of this intervention was the reduction of the harmful factors.

Municipality of Smolyan



Country:	Bulgaria
Category:	Educational Buildings
Year	2007



The **Smolyan Municipality** is situated in the south central part of Bulgaria, in the heart of the Rhodopi Mountains. The municipality joined the GreenLight Programme in 2007 with an ongoing project for the energy efficient reconstruction of the in-house lighting systems in municipal school buildings, kindergartens, student hostels and cultural institutions. The actual ESM started in 2006 and currently it has been carried out in 39 buildings.

As a result of implementing the energy efficiency measures, with investment costs of 807.890 Euro, almost a double reduction of the operating costs are expected over a payback period of 4.9 years. The potential for reducing electricity consumption has been calculated as 1.447.737 kWh/year, which in monetary terms is approximately 165.580 Euro/year with the environmental equivalent of 2.966 tons avoided CO₂ emissions.

Municipality of Zlin



Country:	Czech republic
Category:	Street Lighting
Year:	2007
Award:	2008



The **Municipality of Zlin** is a natural metropolis of southeast Moravia, a statutory city, university seat and centre of the Zlín Region. In 2001 a new industrial zone emerged on the east side of the city, which is being filled by both domestic and foreign investors involved in the development and production of household appliances, automobile industry components, plastics manufacture, metal machining and the food industry.

The first part of the renewal of the Public Lighting system was made from 2002 and 2004 with the support of the Czech Energy Agency.

Part of the lamps were changed and the power installed reduced of 10%. 17 flux controllers of nominal power of 326kVA were installed. The controllers were equipped with astronomical clocks which reduced operational time from 4.400 hours/year to 4350 hours/year. The energy saving of this first intervention amounted to 453.792 kWh/year.

The second part of the renewal of the lighting system was made in 2006. The average power installed was reduced of about 35%. The energy savings achieved was of 917.328 kWh/year.

A third part of the renewal was implemented in 2007.

20 Controllers of nominal power from 230 to 320 kVA have been installed.

Country:	Spain
Category:	Hotels and Restaurants
Year:	2009
Award:	2010



NH Hotels ranks third in the European business hotels; it has 19.814 employees and 397 hotels with 60.591 rooms in 24 countries in Europe, United States and Africa. NH Hotels presented its Environmental Plan for 2008-2012 where it shows its aim to reduce, by 2020, 20% of the energy consumption, the CO₂ emission, the water consumption and the waste production.

Two GreenLight projects where the saving aim of HN above well illustrated:

NH Parquet Agendas (Salamanca)

Seven floor building with 199 rooms. With new efficient lighting the total power installed decreased by about 65%. The saving achieved in electrical consumption for lighting is 60,24%, which means a saving of 177.621 kWh/year equivalent to 80,92 Tons of CO₂.

NH Principe de la Paz (Aranjuez)

The hotel is situated in an ancient building. It has a surface of 11.969 m² and 86 rooms. With new efficient lighting the total power installed decreased of about 68% (from 750kW to 242 kW). The yearly energy saving amount to 58.600 KWh, which means a saving of 72,25 Ton of CO₂. The intervention permitted a cost saving of 14.270 Euro/year, with a payback of one year. Technology implemented: centralisation of the lighting management system, detectors of presence, daylight regulator.

As a total result for the all NH hotel: installation of 700.000 low consumption lamps, reduction of 52% of the lighting consumption in each hotel, reduction of 7,3 % of the energy consumption in each hotel.

Non Ferrum Kranj d.o.

Country:	Slovenia
Category:	Production Sites
Year :	2008



The Company **Non Ferrum Kranj d.o.o** is part of the Ecka Group corporation and produces atomized aluminium dust in different sizes and shapes. Founded in 1972 in St. Georgen near Salzburg/Austria as a producer of secondary aluminium. At this time magnesium was a by-product. 1974 ECKART acquired the majority of the shares and in 1989 the full ownership. From 1972 to 1999 "Non-Ferrum" has steadily increased its magnesium production to 8,000 tons/year. In the last year the company has taken a complete renovation of its lighting system in their production facilities and in their building as well. They have changed their existing old HP-mercury lamps and T8 fluorescent tubes with the new T5 fluorescent tubes with electronic ballasts. The total power installed luminaries was reduced for almost 40% (approx. from 19 kW to 12 kW). The achieved lighting electricity saving is 40.000 kWh/year and the reduction of electricity use for lighting system is of 38%. Payback time: 2,5 years.

Nyborg Forsyning & Service A/S



Country:	Denmark
Category:	Street Lighting
Year:	2005
Award:	2006



Nyborg Forsyning & Service A/S is a multi utility company established in 2001 as a Limited Company owned by the Municipality of Nyborg. This GreenLight Partner is managing the supply of district heating, electricity, water and the waste disposal within the municipality of Nyborg. NFS joined the GreenLight programme since 2005.

During 2006: the replacement of 4 fixtures in a street. The lighting system used before was 65W U-tube. This has been replaced with, 42W TCT HF. New street lighting in a residential neighbourhood (replacement of 90 fixtures). The lighting system used before was 80 W mercury. This was replaced with 42 W.

During 2008: the new street lighting on the square of Nyborg (replacement of 11 fixtures). The lighting system before was 3x65 W. This has been replaced with new fixture from 42W.

During 2009: the new street lighting along a cycle path over a distance of 1.8 Km (replacement of 42 fixtures). The lighting system used before the replacement was fixtures with 80 W HPL, a source of light containing mercury. For the solution LED technology was chosen, 26 W has been used. This is a small and environmentally

compatible fixture, which is a very suitable for renovation. The total energy saving achieved is 419 MWh/year.

O.S.VO. Comp, a.s.



Country:	Slovakia
Category:	Street Lighting
Year:	2008
Award:	2010



Today's administrator of public lightning, **O.S.V.O. comp, a.s.** elaborates a project to reduce energy consumption of public lightning in the city of Prešov. The intent was the optimization of the current network. At the end of year 2009 all steps were realized, including adaptive control of illumination. The results of the project is a saving of 1.585.000 kWh/year. System for monitoring and controlling reacts on demand according with weather and daytime and regulates the light output. In the period from 2007 to 2009 the renovation of 45,8 % of the total numbers of luminaries was completed and the substitution of all luminaries installed before year 1996 was achieved. Total consumption was successfully lowered by 30% per one installed lamp. By starting adaptive control illumination, the Partner achieved a decrease in consumption by 34,38 % if compared to 1996 data. With the realization of the project the whole CO₂ emission from 1996 to 2010 will be successfully decreased for a total amount of 975 tons/ year (42,1 %).

Philips Lighting Poland S.A.

Country:	Poland
Category:	Production Sites
Year:	2009



In May 2007, **Philips Lighting Poland S.A.** made an investment of 15.000.000 Euro in the new Philips lighting Distribution Warehouse for logistic services in Central and Eastern Europe located in Pila (Poland).

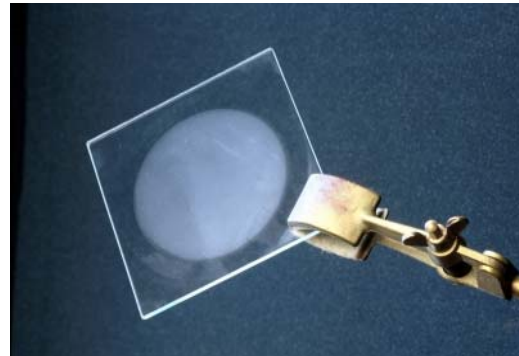
The new lighting installation for the warehouse area (25.000 m²) and the offices was designed on the basis of state of art TL5 technology.

2.303 pieces of TL5 luminaries were installed for a total of 222 kW installed power; 1.854 TL5 2x80W HF trucking system for the warehouse and 459 luminaries TL5 for the offices. Presence detection or daylight linking system are also provided for further energy savings. The warehouse operates 8.500 hours/year with a total consumption of 1.887.000 kWh/year realizing a yearly saving of 765.000 kWh. This innovative system is a new benchmark for warehouse lighting. The average installed power per square meter is at record low level of 8.9 W/m², which makes the whole concept as one of the most efficient lighting examples in Europe.

Plama-pur, d.d.



Country:	Slovenia
Category:	Production Sites
Year:	2008



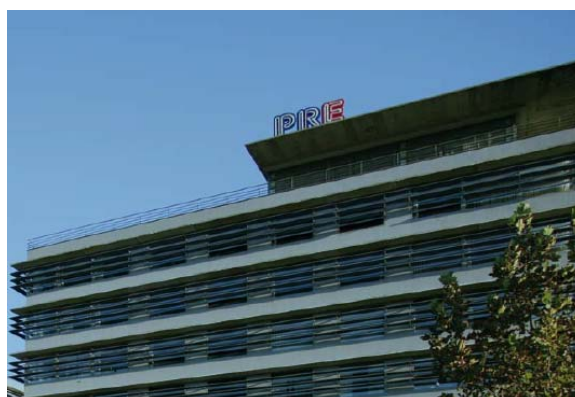
Plama-pur, d.d. is a producer of flexible polyurethane foams with over 50-years-experience. Its products are sold all over the world. Most of them are used in automotive industry; however upholstered furniture and mattresses industry, building and shoe industry are also considerable buyers. It is appearing also in packaging and consumption goods industry.

The intervention concerned 2.475 m² of production hall on a total surface of 7.000 m². Plama-pur management changed the old HP Mercury lamps, magnetic conventional, with new metal halide, magnetic low loss. The luminary's total power installed decreased form 425W to 266W. Pay back time: 3,80 years.

Pražská energetika Group (PRE)



Country:	Czech Republic
Category:	Production Sites
Year:	2008



Pražská Energetika Group (PRE), with registered office in Prague, is the third largest electricity supplier in the Czech Republic and has 745.000 customers. At the moment the company has approximately 1.330 employees, supplies circa 6.5 TWh of electricity to its customers per year and in 2009 the company generated the turnover of CZK 20.7 billion.

The Prague Energy Utility (PRE) joined the GreenLight Programme as a Partner, as well as an Endorser.

PRE is the first energy distribution company in the Czech Republic to join the programme.

The retrofitting took place in five buildings with overall electrical energy savings of 1.046 kWh/year, approximately 31%. Translated into CO₂ emissions this means a saving of 1.224 tons/year of CO₂.

PRE also launched a special internal activity, promoting the GreenLight Programme to the corporate clients of the energy utility.

Prague Marriott Hotel



Country:	Czech Republic
Category:	Hotel
Year:	2008
Award:	2010



The **Prague Marriott Hotel** management decided to make a committed effort to reduce its energy consumption and selected its interior lighting system as the first step. A hotel building with 293 rooms and a conference facility needs lighting for both the safe orientation of its clients and employees and at the same time to “emphasise” the proper atmosphere of comfort and convenience.

The revision of the light sources used for these purposes ensures that these aims are achieved and at the same time significantly lowers operating costs and leads to easier maintenance because all the newly selected light sources have a longer life.

The selected light sources mainly included a wider range of compact fluorescent light bulbs in corridors and rooms (70% more efficient than incandescent lights, 15 times longer life), LED light sources in the corridors (90% more efficient than halogen reflectors, 10 times longer life), and E27 halogen light bulbs in the ceilings of the main halls (30% more efficient than incandescent light bulbs, 2 times longer life).

The lighting electricity savings was of 404 MWh/year with a reduction of electricity used in the areas covered of 58%.

CO₂ emission savings are evaluated in 472 tons/year.

Predilnica Litija d.o.o.

PREDILNICA LITIJA

Country:	Slovakia
Category:	Production Sites
Year:	2007
Award:	2008



Predilnica Litija d.o.o., a technical textile manufacturing company, has become the first Slovenian GreenLight Partner.

In order to reduce electricity costs and improve lighting conditions they decided to completely renovate the existing lighting system. The renovation covered a surface area of 19.700 m² (total area: 36.000 m²).

All renovations consist in new metal halide luminaries equipped with low-loss magnetic ballasts (instead of HP Mercury luminaries with high-loss magnetic ballasts).

Lighting quality has also improved significantly (30-100 lux to 300-500 lux).

Measured lighting electricity savings (already achieved) are 7.681.000 kWh/year.

Estimated lightning electricity savings (including planned renovation) are 10.337.000 kWh/year. The renovation project was achieved through TPF (Third Party Financing) provided by company EL-TEC Mulej,d.o.o. (ESCO company, also GreenLight endorser).

Primary School Riedberg Frankfurt am Main

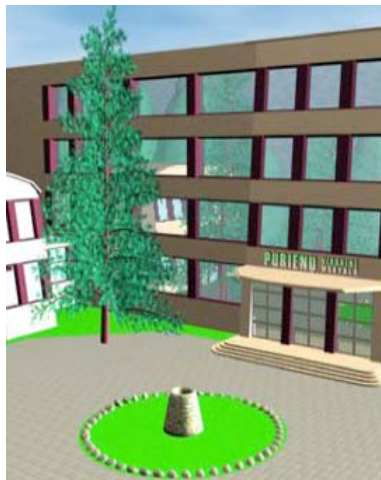
Country:	Germany
Category:	Educational Building
Year :	2007



The project had the aim to build a school “in passive house” quality in **Frankfurt am Main**. For the new light system were chosen high efficient lamps T5 with automatic switch-off during breaks and switch on only by demand. The electricity consumption before the refurbishment was 80.000 kWh/year; after the intervention decreased to 25.000 kWh/year.

Purienu Secondary School

Country:	Lithuania
Category:	Educational Building
Year:	2008



Purienu Secondary School is located in Kaunas City, Lithuania.

The floor area upgraded is 3.705 m².

The number of luminaires increased from 420 incandescent aluminised lamps to 437 new fluorescent painted lamps with electronic dimmable ballasts.

The power installed decreased from 63.000 W to 31.464 W with a saving of 68.003 kWh/year.

The yearly running costs also decreased from 2.906 Euro to 1.285 Euro with a saving of 1.621Euro.

Payback is expected in 3.82 years.

Reichenberg GmbH Greensurance



Country:	Germany
Category:	Services and Office Spaces
Year :	2007



Member of BAYERNenergie e.V., the **Reichenberg GmbH**, offers specialized solutions for energy consultants, engineers and architects.

The GreenLight project concerned the optimization of the lighting system in the company offices by changing the conventional lamps with magnetic ballast in the new generation ones with electronic ballasts.

The electricity consumption before the refurbishment was 1.855 kWh/year and after amounted to 1.211 kWh/year (35%) with an investment of 615 Euro and a saving of 155 Euro/year.

Renault Trucks SAS



Country:	France
Category:	Production Sites
Year:	2008



Renault Trucks SAS is one of the biggest industries in the Rhône Alpes region. In this specific **site of Vénissieux** they are involved in manufacture, assembly, storage and elaboration of prototypes.

The control of electricity consumption is one of the priorities of this site. Three areas of the workshop are interested in the project for a total surface of 7.800 m². New luminaries 2x58W with high performance (89%) have been chosen. A regulator for natural light is placed on each lamp in order to guarantee a good uniformity and the best comfort for the workers. Every different line of illumination is treated in a specific way in order to respond to the different lighting demand of the workers in the different areas of the workshop. The value of optimisation of the number of lamps together with the gain of natural light give an energy saving of about 50%.

Richard Behr & Co, GmbH Ribeco Group



Country:	Germany
Category:	Production Sites
Year:	2007



Founded in 1917, the **Richard Behr & Co.**, processors of duck and goose feather and for the bedding industry, is a Company of Ribeco Group.

This GreenLight project concerns the refurbishment of the old lighting system, the total area invested by the renewal is of 11.000 m². The old luminaries 2/58W have been replaced with the new T5 generation 2/35W with daylight-based light control.

The total lighting electricity saving amounts to 16.198 kWh/year with a reduction of 41% in the use of electricity.

The power reduction is 4,1 kW.

The cost saving is of 2.906 Euro/year.

Payback is expected in 4,1 year.

The CO₂ emission reduction amounts to 7,1 tons/year.

Riga Graduate School of Law



Country:	Latvia
Category:	Educational Buildings
Year of accession:	2007



Located in the beautiful Art Nouveau district, the **Riga Graduate School of Law (RGSL)** is a top law school in the Baltic region and an autonomous unit within the University of Latvia. Founded in 1998 through an international agreement between Sweden, Latvia and the Soros Foundation, the Riga Graduate School of Law provides high quality post graduate degree programmes in European and International Law, Law and Finance and in Legal Linguistics

RGSL is participating in the Green Light project as a Partner and by consequence has installed efficient lighting systems in classrooms and offices.

The total number of luminaries was 366. All the incandescent bulbs have been replaced with new system equipped with CFL technologies with ballasts.

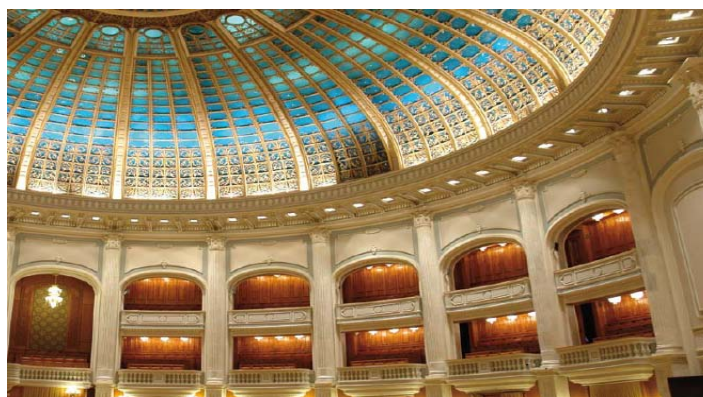
According to remaining needs, in the near future it is planned to carry on only a few small further improvements.

However, these considerably small improvements could allow RGSL savings up to 14,9 MWh/year, which amount to 5,45 tons of CO²/year.

Romanian Parliament



Country:	Romania
Category:	Public Buildings
Year of accession:	2006
Award:	2008



The **Romanian Parliament building** is recorded in the Guinness Book as the second biggest building in the world according to its surface (330.000 m²) and the third by volume (2.550.000 m³). The building is 84 m high with 12 floors above ground and 8 floors below ground. The biggest hall, Unirii, is 1.900 m² and has 1.000 places.

Energy efficiency for lighting was one of the main subject for discussion in Parliament till 2000 when Energy Efficiency Law was approved. At that time a new low consumption lamp has been offered to all parliamentarians involved in the approval of the this law in order to facilitate the rapid understanding of energy conservation impact for domestic consumers. The underground has 12 floors and 4 underground levels. All the lamps were replaced. Incandescent bulbs D1 were replaced with D9 fluorescent lamps. D5 lamps were replaced with D6 reflectors Magnetic ballasts E2.

The main parameters of the first stage of the lighting system modernization process are:

Total building area of the modernization: 33.103 m²

Total number o lamps replaced: 31.214

Lighting electricity used before the intervention: 5.572.074,3 kWh/year

Lighting electricity used after the intervention: 1.572.074,3 kWh/year

Lighting electricity saved: 4.272.336,9 kWh/year

reduction of lighting power installed: 1.596.553 kW (72%)

Energy savings: 4.272.337 kWh/year

Lighting electricity bill savings per year : 753.942 Euro

Savings from maintenance cost :64.386 Euro/year

Total savings in running cost (electricity +maintenance) : 818.328 Euro/year

According to the energy saving impact, the CO₂ reduction potential is estimated at: 2.072 tCO₂/year.

Rote Rathaus



Country:	Germany
Category:	City Public Buildings
Year:	2007



The **Rotes Rathaus**, literally Red Town Hall, is the town hall of Berlin located in the District on Rathausstraße, near Alexanderplatz. It is the Headquarter of the Governing Mayor and the of Government of the Federal State of Berlin.

The project concerned the refurbishment of the outdoor lighting and the facade illumination.

The implemented technology consisted in the exchange of the old halogen lamps into efficient high pressure lamps with modern mirror optics.

The electricity consumption before refurbishment was of 92.500 kWh/year; after the intervention was reduced to 62.350 kWh/year.

The total investment was of 100.000 Euro and the economical saving amount to 82.265 Euro/year.

Saule Birinius Pils SIA

Country:	Latvia
Category:	Hotel and Restaurant
Year:	2008
Award:	2010



Saule Birinius Pils SIA is part of the project for tourism development: "Castles of Tomorrow"- *Development of Castles and Manor Houses of the Baltic Sea Region as Cultural Heritage Objects and Town Centres in Rural Areas.*

Birini Manor is situated in Birini village 50 km from the capital of Latvia–Riga. Birini manor house is surrounded by parks and two lakes connected by floodgate. The manor house building, several servants' houses, the stable, the water tower as well as the water mill are intensely used for tourism.

Since 1993, Birini Manor is managed by SIA „Saule Birinu Pils”. There are 30 employees working today in Birini Manor.

The GreenLight project concerned an area of 3.550m²

The energy saving achieved is of 131.190 kWh/year (76%)

The costs savings amount to 9.333 Euro/year

The technology implemented was: installation of lamps equipped with electronic ballasts and aluminised reflector or CFL lamps.

Sci Ocean Etude Guiraud & Bardet

Country:	France
Category:	Services and Office Space
Year:	2007



The intervention concerned the **Sci Ocean - Etude Guiraud & Bardet's offices**, with a total floor area upgraded of 370 m². Each office is now controlled by a double switch; the new luminaries located close to the windows can be switched of separately from the other luminaries. The new lamps are equipped with aluminised reflectors.

The total number of lamps decreased.

The consumption before the intervention was of 15.000 kWh/year, after the intervention decreased to 4.902 kWh/year. The yearly running costs before the refurbishment amounted to Euro 1.350, after the project they were reduced to Euro 590. Payback of the intervention is expected in 6 years.

SIA Biznesa Centrs TOMO



Country:	Latvia
Category:	Hotels and Restaurants
Year of accession:	2006



Hotel TOMO is a a three star conference hotel in Riga with 170 luminous and comfortable Baltic style rooms, six modern conference rooms, Internet Café, restaurant Firita, fashionable Bar 21 and Admiral Club 170. The total area of the premises is 6.911m².

In the hallways of the hotel were installed with 4-bulbs 112W luminaries with halogen type bulbs, which were operated 3.475 hours per year. These luminaries have been replaced with 156, 26 W T5 fluorescent tubes. In the corridors were installed 8 luminaries with 25 W incandescent bulbs each, which have been replaced with 5W CFL: In the rooms were installed different type of luminaries according to room size and type. In total there were 294 luminaries with one 25W incandescent, which have been replaced with 294, 11W CFL.

In the restaurant were installed decorative luminaries with each four 25W incandescent bulbs. These have been replaced with four 7W CFLs.

Lighting in the conference rooms and offices were mainly provided by 294 luminaries with 2-60W incandescent bulbs each. These bulbs have been replaced with 15W CFL. Out door lighting was equipped with 7-350W photo sensor based halogen luminaries, that have been replaced with 7-245W bulbs with reflector and daylight sensor.

Total annual energy saving is of: 121.500 kWh/year

Sint-Niklaas Stedelijke OpenBare Bibliotheek



Country:	Belgium
Category:	Educational Buildings
Year:	2006
Award:	2008



The GreenLight Project proposed by this Partner concerns the **library Stedelijke OpenBare Bibliotheek in Sint-Niklaas town, Belgium.**

The floor area upgraded is of 2.030 m². The existing lighting system was equipped with 26mm-diam. fluorescent lamps, incandescent and halogen lamps. All these have been changed into 16mm-diam. fluorescent lamps, metal halide and CFL pin-based luminaries. The old painted reflectors have been substituted with aluminised ones. Compared to the baseline, lighting quality of post-installation has been improved.

The lighting electricity consumption decreased from 175.204 kWh/year to 56.093 kWh/year.

The yearly running cost decreased from 28.262 Euro to 8.199 Euro, with a saving of 20.063 Euro.

Payback is expected in 6 years.

SIP Strojna Industrija, d.d



Country:	Slovenia
Category:	Production Sites
Year:	2008



Company **SIP Strojna Industrija d.d** from Šempeter is active in the field of development and production of agricultural machinery for more than 50 years.

After having performed an energy audit, the company decided to start with a complete renovation of its lighting system in their production facilities. All upgrades were achieved in 2008.

They have changed their existing old HP-mercury lamps, 450 W each and the incandescent lamp, 500 W each, into new industrial lamps REFLECTA which are efficient T5 fluorescent tubes with electronic ballasts and high performing casing reflection.

The total power installed of luminaries was reduced for more than 80% (approx. from 160 kW to 27 kW).

The lighting electricity saving obtained amounts to 392.000 kWh/year.

The reduction of electricity consumption for lighting system is 83%.

Payback is expected in 1 year.

**Soprococ S.A.S.
Groupe l'Oréal**

L'ORÉAL

Country:	Belgium
Category:	Production Sites
Year:	2008



The GreenLight project consists in the renewal and development of one of the production areas of the **Soprococ S.A.S.**

The envisaged area was the mechanical precision one. Here the 799 existing lamps with conventional ballasts (installed in 1987) have been removed and substituted with 799 lamps equipped with electronic ballast. The automatic system of lighting management for energy saving uses a light sensor to adjust artificial light delivery depending on the contribution of the natural one.

The electrical consumption before the intervention amounted to 1.047.000 kWh/year, after the new installation it was reduced to 384.000 kWh/year (lighting electricity savings per year: 63%, 663.000 kWh/year).

The installed power decreased from 167,79 kW to 87,89 kW.

Spółdzielnia Budowlano Mieszkaniowa Spółdom



Country:	Poland
Category:	Services and Office Space
Year:	2009



Thanks to its management, the **Cooperative SPOLDOM** in **Lublin**, became aware of the importance of energy consumption. The Cooperative administers 22 buildings, in which there are 716 flats and more than 2000 occupants.

The modernisation of stairs lighting was just the beginning of the building refurbishment. These 11 floor buildings were lighted up with the traditional, standard and very old technology. Light was activated by pressing a button and the entire floor was switched on for 3 minutes. Luminaries were equipped with incandescent bulbs 40W. More than 4kW was installed only for stairs lighting. Consumption was estimated around 10.220 kWh/year. The cost of electricity was approximately 1.000 Euro/year. In 2008 the project of modernisation started.

In 4 buildings 100 lighting points were changed with luminaries equipped with movement sensor and CFL 18W source. The energy consumption is now 1.314 kWh per year with a running cost of 128 Euro/year. As additional benefit, the CFL lifetime is considerably longer (foreseen period without exchange: 2 years) with a further decrease of the maintenance costs.

Country: Sweden
Category: Production Sites
Year: 2006
Award: 2006



Sorting of sawn lumber in sawmills puts great demands on lighting quality. In a practical demonstration carried out by **TRÄTEK** (Swedish timber and wood manufacturing industries Association) and **STEM** (Swedish Energy Agency) at **two saw mills**, shows that lighting quality can be improved while saving more than 60% of energy. The solution used directed luminaries equipped with CDM lamps. The lamps are small in size and give distinct, contrast enhancing light. The light is perceived as pleasant with natural colour rendition.

At the **Bergkvist-Insjön** sawmill the lighting consists of three luminaries equipped with 150 W ceramic metal halide lamps and at **Derome** sawmill three 70 W ceramic metal halide lamps have been installed.

Lighting installations sawmills (Sweden)

Initial lighting	Insjön	Derome
Installed T-5 Fluorescent lighting (Watt)	1260	630
New Lighting		
Installed lamps CDM (Watt)	498(40%)	236(38%)
The Net Result		
Power reduction Watt)	771	394
Burning time (Hours)	3.600	3.200
Energy savings (KWh)	2.776	1.261
Cost reduction per year (SEK)	1.388	631

Stadt Böblingen



Country:	Germany
Category:	Street Lighting
Year:	2008



The GreenLight project concerned the refurbishment of the street light system in the residential areas of "Baudezernat" in **Stadt Böblingen**.

The old mercury vapour lamps 2x80W were changed into 1x60W or 1x90W metal halide lamps.

The intervention gave the following performance: the electricity consumption before the refurbishment was 800.000 kWh/year and after the intervention decreased to 320.000 kWh/year with a saving of 40%.

The investment cost amounted to 740.000 Euro and the result in saving cost is 110.000 Euro.

Stadt Geldern



Country:	Germany
Category:	Street Lighting
Year:	2008



Geldern lies in the plains of the lower, northern Rhineland. The river Niers, a tributary of the Meuse, flows through Geldern city. This GreenLight project concerned three sections of the street lighting in Geldern.

In the future it is planned to complete the refurbishment of the Geldern street light system and of 7 small towns of the Region. The intervention consists in the change of 223 lamps from mercury lamps to HP sodium vapour lamps. In addition the substitution of 214 luminaires 2xflamed 80W mercury vapour lamps with opal pans to 1 flamed 50W sodium vapour lamps with facet mirror and transparent pan will be executed.

The electricity consumption before refurbishment was of 86.000 kWh/year; after refurbishment is 59.360 kWh/year.

The investment was of 10.435 Euro; the saving amount obtained is 3.996 Euro/year.

Stadt Graz



Country:	Austria
Category:	Street Lighting
Year:	2006
Award:	2006



The implementation of the project **GreenLight Graz 2010** is carried out in two steps.

In 2005 the Pilot Project GreenLight Graz 1 has implemented 720 lamps in the main streets.

The project "GreenLight Graz 2" includes modernisation measures on over 15.000 light spots during a period of four years (2007-2010).

The potential economic saving after the end of the refurbishment works in 2011 was calculated approximately of 26%, which corresponds to a saving in energy costs of about 280.000 Euro/year. The measures implemented have been: luminaries-reconstruction, luminaries-change, installation of control systems, lamp exchange, lamp re-equipment, re-adjustment to lowered operation all with the aim of up-to-date technology.

On behalf of the city of Graz, the Graz Energy Agency takes over the project development, the project preparation (contract management, calculation of profitability) and the management of the realisation including the appropriate controlling and the project documentation.

Stadt Hagen



Country:	Germany
Category:	Street Lighting
Year:	2008



Stadt Hagen is located in the federal State of North Rhine-Westphalia, on the eastern edge of the Ruhr area.

The GreenLight project of this Partner concerned the refurbishment of the street lighting system.

Implemented technology consisted in: modernization of 500 light points per year from high pressure mercury vapour lamps to sodium vapour lamps and also power reduction during period of low traffic.

The investment cost amount to 450.000 Euro and the saving cost obtained is of 36.000 Euro/year.

The electricity consumption before refurbishment was 6.548.000 kWh/year; after the project decreased to 6.235.116 kWh/year.

Stadt Hofheim am Taunus



Country:	Germany
Category:	Car Parks
Year:	2008



The GreenLight project concerned the energy saving contract for the parking garage at the train station in **Hofheim am Taunus**, a town of the Land of Hesse, 17 km West of Frankfurt.

Implemented technology consisted in the refurbishment of the old lighting system.

New T5 lamps with electronic ballasts, time switch, motion detectors and daylight sensors have been installed.

The electricity consumption before the refurbishment was of 80.250 kWh/year; after is of 26.350 kWh/year with a total saving of 53.900 kWh/year.

Stadt Kempten



Country:	Germany
Category:	Street Lighting
Year:	2007



The GreenLight project concerned the refurbishment of the street lighting system in **Kempten**, Germany.

The out-dated lamps have been changed into the more efficient HST (Hubble Space Telescope) lamps. The power reduction devices have been implemented and it was possible to reduce the power of the street lighting system with an unchanged illumination levels.

The consumption before the intervention amounted to 3.062.074 kWh/years and after to 2.009.901 kWh/year with an energy saving of 1.052.173 kWh/year.

The invested capital was about 700.000 Euro.

The costs saving achieved was about 80.000 Euro/year.

Country:	Germany
Category:	Educational Buildings and Sport Hall
Year:	2007



Stadt Lohmar is located about 20 km east of Cologne and 15 km north-east of Bonn in the Bergisches Land area. The main part of the town area is located nearby the Agger, southern of Overath.

The GreenLight project concerned the refurbishment of the school centre and of a sport hall.

The implementation of technology permitted the installation of T5 lamps with high efficient cell parabolic aluminium louvers, day light and presence depending controlling.

For the two projects together, the results are: electricity consumption before the refurbishment 299.561 kWh/year, electricity consumption after the refurbishment 98.585 kWh/year. The total investment was of 160.000 Euro with a saving cost of 26.127 Euro/year.

Stadt Senftenberg



Country:	Germany
Category:	Street lighting
Year:	2008



Stadt Senftenberg is located in the southwest of the historic Lower Lusatia, region at the border with Saxony. Its town centre is situated north of the river Schwarze Elster and the artificial Senftenberger Lake, part of the Lausitzer Seenland chain.

The GreenLight project concerned the street lighting for the residential area Berthold-Brecht-Strasse.

The implemented technology consisted in: luminaries Type 2020 AND, Industria, NAV-T 50Z.

The electricity consumption before refurbishment amounted to 79.920 kWh/year; after was reduced to 15.300 kWh/year.

The investment is about 42.000 Euro with a cost saving of 11.020 Euro/year.

Stadt Vechta



Country:	Germany
Category:	Street lighting
Year:	2007



This GreenLight project concerned the refurbishment of the street lighting system of **Street Lattweg** in the **Municipality of Vechta**.

The implementation permitted the exchange of lamp and luminaries: high pressure mercury lamps (125 W) were substituted with new-generation ceramic metal halide lamps for outdoor lighting with white light, using a new lamp base and clear quartz outer bulb

The electricity consumption before the refurbishment was of 25.208 kWh/year and after diminished to 11.960 kWh/year with an energy saving of 13.248 kWh/year.

The total investment has been 16.056 Euro with an achieved annual saving of 2.000 Euro.

Stadt Villingen-Schwenningen



Country:	Germany
Category:	Street Lighting
Year :	2009
Award:	2010



Stadt Villingen-Schwenningen has been involved in 3 GreenLight projects.

The technology employed has been the following: LED, HP Sodium lamps and HIT (Heraeus Ignite Technology).

The energy consumption before the refurbishment was of 115.000 kWh/y, after the intervention amounts to 48.600 kWh/y with an energy savings of 66.400 kWh/year.

The investment volume was of 370.800 Euro and the savings achieved amounts to 9.260 Euro/year.

The energy saving as result of the operation is about 58%.

All the projects that will be implemented in the future for lighting improvement will never use any more mercury vapour lamps.

Stadtgemeinde Fürstenfeld



Country:	Austria
Category:	Street lighting
Year:	2009



The Stadwerke Fürstenfeld GmbH (the operating company of the street lighting system of the **Stadtgemeinde Fürstenfeld**) started to deal with the theme "effective street lighting" some years ago because of the growing of lighting points and the growing costs. The first detailed recording from year 1999 showed: 1.150 lighting points with energy consumption of about 490.00 kWh/year and 105.000 Euro energy costs. At the end of 2007 the street lighting system reached 1.690 lighting points and a consumption of approximately 750.000 kWh/year. The intention was to reduce the consumption until 2010 to 650.000 kWh/year but also to increase, at the same time, the number of lighting points and the quality of luminance.

1996-2001: night dimming with electronic controller was installed; 100.000 kWh/year were saved with this measure.

2002-2003: reconstruction of the main road; before the reconstruction the street lighting system was equipped with 40W mercury high pressure vapour lamps, after 150W sodium high pressure vapour lamps were used. The new lamps also get reduced to 100W by night. This measure achieved a ten points better illumination with constant energy consumption.

2007: the whole underground lighting system got changed with a saving of 10.300 kWh/year.

2008 and 2009: 370 globe refugence 125W mercury high pressure lamps were replaced by 50W sodium high pressure vapour lamps in the residential area. This measure permitted an energy reduction of 100.000 kWh/year and a better illumination. The maintenance got reduced because of the protection class IP66.

The Municipality of Fürstenfeld saved 210.000 kWh/year thanks to all these measures. But also the illumination got better and the safeness for all the citizen was improved.

In the next 25 years the town is expected to save about 5.250.000 kWh/year with a reduction of about 3.450 tons of CO₂.

Stadtgemeinde Neusiedl am See



Country:	Austria
Category:	Street lighting
Year:	2008



The administration of **Stadtgemeinde Neusiedl am See** had a very convinced approach to energy saving, and was very satisfied for the results of the project.

The old streetlight system of this Municipality was equipped with candelabra lamps 4xLL 18W, Mushroom-lamp 1x HQL 80W, fluorescent lamp 2x 40W and Meteora lamps 1x HQL 125W.

In the renewal all the fluorescent lamps were replaced with new one equipped with 1xNAV 50W and 70W and with 1x70W or 1x100W. All modern luminaries are sodium pressure lamp. The conventional magnetic ballast has been replaced with electronic dimmable ones. A total monitoring system of the street lights is provided; 23 switch boards were replaced. 30 lights for the protection paths have been installed to ensure citizen security: positioned in front of the pedestrian crossing they offer a maximum contrast to the environment. Visual display system ensures total monitoring of street light system.

The energy consumption before the intervention was of 895.988 kWh/year, after the introduction of the new measures is of 537.323 kWh/year, with a saving of 358.665 kWh/year. The annual CO₂ saving amount to 179,33 tons. Due to the energy saving program in the Municipality the consumption has been reduced to 250,5 kWh/year per light spot.

Stadtverwaltung Ludwigshafen am Rhein- Bereich Tiefbau



Country:	Germany
Category:	Street lighting
Year:	2008



Ludwigshafen am Rhein is a city in Rhineland-Palatine. Ludwigshafen is located on the river Rhine opposite to Mannheim. Together with Mannheim, Heidelberg and the surrounding region, it forms the Rhine Neckar Area.

The GreenLight project concerned the pedestrian area of the city. Here the old mercury vapour lamps have been changed for ceramic metal halide lamps

This measures gave a very good light distribution without glare and scattered light.

The installations produce the double amount of light at half energy needed.

The electricity consumption before the GreenLight refurbishment amounted to 161.280 kWh/year; after was reduced to 75.600 kWh/year.

The investment cost was 305.000 Euro and the saving is 50.000 Euro/year.

Furthermore the Municipality intend to exchange all mercury vapour lamps for HP sodium lamps and compact fluorescent lamps in the next five years.

State Enterprise Kaunas Airport



Country:	Lithuania
Category:	Airports
Year:	2008



Kaunas International Airport joined the GreenLight Programme in 2008. A new, modern high intensity ground lighting system was installed at the Airport.

The system makes landing in complicated meteorological conditions safer, which is very important.

The supplied and installed high intensity lights ensure not only safe landings, but also economic and efficient use of electric power during safe aircraft landings and take offs. Compared to the old system, the new high intensity system concentrates more power to the focused light, which makes it easier for the pilots of landing aircraft to see. Installing this system increased the safety of flights and power energy is used more efficiently.

The new ground lighting system uses electric power more economically. Refurbishing the lighting system will reduce annual expenses for airport ground lighting by 22%, with a payback period of just 6 years. After installing the new ground lighting system, international airlines will be more interested in Kaunas International Airport and this will improve flight connections with other airports. After modernizing the Airport ground lighting system the operation of the airport has improved and provides a better service.

Súkromné Tanečné Konzervatórium Dušana Nebylu

Country:	Slovakia
Category:	Educational Buildings
Year:	2008



The **Private Dance Conservatory Dusan in Trnava** was founded in 2004.

This GreenLight Partner is the first and only secondary art school of this kind in the Trnava Autonomous Region.

The project concerned the educational building which has an area of 3.364 m².

The old incandescent STD lamps have been replaced by new 16mm-diameter fluorescent, magnetic low-loss ones. The total luminary's power decreased from 100 W to 46 W.

The consumption before the intervention amounted to 86.424 kWh/year; after is 43.212 kWh/year for a total energy saving of 43.212 kWh/year.

The yearly running cost before this project amounted to 94.000 Euro and after to 50.350 Euro/year with a saving in running cost per year of 43.650 Euro.

Payback is expected in 4 years.

TAIM-TFG S.A.



Country:	Spain
Category:	Production Sites
Year:	2005



TAIM-TFG is a GreenLight Partner since 2005, new lighting project has been made in 2006. TAIM-TFG is the result of the merge in 1973 of two prestigious firms: TFG (Tallers Florencio Gomez), founded in 1899 and well consolidated as a manufacturer of elevation and conveying system, and TAIM (Talleres Auxiliares de la Industria MInera), created in 1953 and oriented towards promoting the development of mechanization in the mining industry.

It is located in Zaragoza, and it takes up an area of 60.000 m².

The factory is equipped with the most advanced technological facilities. It has its own railway siding. Before the GreenLight intervention the total power installed was of 205 kW. Energy consumption for electricity was estimated of 64.236 Euro/year, with a consequent emission of CO₂ of about 630 tons. After the intervention the company obtained a reduction of its energy consumption of 29%, with a costs saving of 18.571 Euro and also a diminishing of CO₂ emission of 29%. The payback of the investment is expected in 6 years.

Takeda Italia Farmaceutici S.p.A.

Country:	Italy
Category:	Production Sites
Year:	2006



The GreenLight project concerns a production area of the **Takeda Italia Farmaceutici S.p.A.** located in Novara, Italy. The subject of intervention is the 5.340 m² area of the production site. Aim of the project was to reduce electrical consumption replacing the old obsolete lights with high efficient lamps. In total 529 lamps have been substitute. Better conditions of work have been guarantee minimizing at the same time energy consumption. Implementation of education and of awareness towards environmental issues is a significant part of the company policy.

The lighting electricity saving amounts to 71.392 kWh/year with a costs saving of 10.240 Euro/year. The total power has been reduced to 19,4 kW. The use of electricity has been reduced of 35%, with a reduction of CO₂ emissions of 34,4 tons /year. The pay back time of the investment is expected in 7 years.

Tartu City Government



Country:	Estonia
Category:	Street Lighting
Year:	2009



Tartu is the second largest city of Estonia with approximately 95.000 inhabitants. The city has 320 km of streets; in 2005, one year before the start of the energy-saving intervention, there were 8.200 luminaries.

The GreenLight project consisted in converting 2.800 non-efficient mercury lamps into modern high pressure sodium luminaries with energy saving devices; the aim was to keep the financial expenses stable whereas at the same time the number of luminaries and the energy tariffs increase every year.

The project was realized during 2006.

Energy consumption for the street lighting of Tartu before the project, during 2005, was of 8.610 MWh.

In the years 2006 and 2007 they added correspondingly 580 and 700 luminaries to the street lighting networks. Their (1.280 luminaries) energy consumption during one year was 704 MWh. Energy consumption of Tartu during 2006 was 7.960 MWh and the consumption during 2007 was 7.800 MWh. Due to this project the real energy saving during 2007 comparing to the consumption of 2005 are: $8.610 \text{ MWh} - (7800 - 704 \text{ MWh}) = 1.514 \text{ MWh}$.

In addition the arranged project is environmentally very useful. Every year the city save 650 ton of oil shale, which is the main electric energy source of Estonia.

Toplarna Hrastnik, d.o.o



Country:	Slovenia
Category:	Production Sites/ Service and Office Space
Year:	2008



Toplarna Hrastnik, d.o.o is a company for the production, distribution and sale of thermal energy from 1992. The GreenLight intervention concerned the lighting system refurbishment of the city's heating plant and of the relative offices. The total floor area upgraded is of 1.086 m². The old incandescent non reflector lamps have been substituted with CFL self-ballasted, electronic non dimmable aluminised lamps. The old 26 mm-diameter fluorescent, magnetic non reflector lamps were changed with 26mm diameter fluorescent, electronic non dimmable aluminised lamps.

The consumption before the project amounted to 44.489 kWh/year; the consumption after the intervention is of 25.369 kWh with a saving of 19.120 kWh/year. The pay back time is expected in 4 years.

Toyota Caetano Portugal, S.A.



Country:	Portugal
Category:	Production Sites
Year:	2008



The intervention concerned one of the buildings of the Division **Toyota Factory** in Ovar.

After becoming a GreenLight Partner, this Company started to dedicate more attention to the lighting of its plants. For example: the lighting of the garden was equipped with incandescent lamps that were replaced by CFL lamps. Another example: the welding and warehouse areas had old HPL luminaries, all of them were replaced by fluorescent lamps with electronic ballasts allowing better lighting conditions and safety. The existing fluorescent 2x36 W luminaries were replaced by new fluorescent 1x58W and electronic ballasts. In the paint shop the ferromagnetic ballasts of the fluorescent lighting was changed into electronic ballasts; in the spray booth the 36 W luminaries were changed for new 80 W fluorescent lamps with electronic ballasts. The main measure implemented was the decision that TCAP will only buy new fluorescent lighting with electronic ballasts.

The result of this intervention is an electrical lighting saving of 116.590 kWh/year with a power reduction of 54,3 kW and a CO₂ emission reduction of 58,3 tons/year.

Turbomecanica SA



Country:	Romania
Category:	Production Sites
Year:	2006



Turbomecanica SA, is located in Bucarest, Romania. It is an important producer of components and subassemblies for turbojets and turbo shafts, repair of aero engines and dynamic components for helicopters.

The GreenLight project concerns 209.000 m² of the production area.

The number of indoor luminaries decreased from 1.368 to 582. The old type of lamp, 38 mm-diam. fluorescent have been changed into the metal halide ones and the conventional old ballasts into the new electronic ones.

The consumption before the intervention was of 1.684.282 kWh/year and after was reduced to 925.555 kWh/year with a saving of 758.727 kWh/year.

The running cost decreased from 174.938 Euro /year to 85.619 Euro /year.

Unibail-Rodamco



Country:	France
Category:	Services and Office Space
Year:	2009



Unibail-Rodamco is the leading listed European commercial property operator, investor and developer; it is active in three major business lines: shopping centres, offices and convention-exhibition centres.

Aim of the company is to reduce of 25% the use of non-renewable energy sources between 2006 and 2016.

Within the GreenLight Programme the company undertook seven different projects (Centre Commercial Ulis 2, Cité Europe, CNIT, Place d'Arc, St. Martial, Carrousel Louvre, Siège Social Adenauer) where a relighting intervention took place.

The final results are the followings:

Energy saving: 1.107.820 kWh/year

Cost saving: 64.548 Euro/year

Average payback time: 8,1

Unicredit



Country:	Italy
Category:	Services and Office
Year:	2002
Award:	2008



UniCredit is a major international financial institution with strong roots in 22 European countries and an international network present in approximately 50 markets, with 9.578 branches and more than 162.000 employees.

In the frame period 2004-2007 Unicredit in Italy achieved the following results:

- Branches refurbishment involved: 130 interventions, 49.135 m²
 - New Branches opening involved: 302 interventions, 85.582 m²
 - Offices refurbishment involved: 20 interventions, 34.652 m²
- Total interventions: 425 – Total surface involved: 169.369 m²

For this period time 2004-2007 the following results were achieved:

- Costs savings: 725.000 Euro/year
- Energy savings: 4.793.000 kWh/year
- CO₂ emission reduction: 2.500 tons/year.

•In 2008 Unicredit made other 100 interventions of refurbishment achieving 123.000 Euro of costs savings, 813.000 kWh of energy savings with a CO₂ reduction of 424 tons.

Valeo Transmissions



Country:	France
Category:	Production Sites
Year:	2007



The intervention concerned the production site of **Valeo Group** in Amiens, France.

The surface involved in the project is of 24.240 m². The old T8 lamps have been replaced by the new T5 lamps with electronic ballast and aluminised reflector. The number of luminaries has been reduced of 50%. The total power installed decreased from 250 kW to 150 kW. The saving of maintenance cost is 55%. The general condition of works has been improved.

Payback is expected in 3,6 year.

The electrical consumption before was of 1.465.000 kWh/year and after the intervention decreased to 876.000 kWh/year with an energy saving of 31.217 kWh/year.

The yearly running cost decreased from 13.496 Euro to 6.004 Euro with a saving of 7.492 Euro.

Vattenfall Service Nord AB



Country:	Sweden
Category:	Street Lighting
Year:	2008
Award:	2008



Vattenfall Service Nord AB, which is a wholly owned subsidiary of the Swedish State – owned utility Vattenfall, has in co-operation with Nordic Light AB and Primalence AB (both Swedish companies) developed a ceramic metal halide lamp based fixture (named Cobra) plus an advanced electronic ballast for road and street lighting applications. The advantages of the lighting fixture are: colour rendering index >90, colour temperature 4200K, completely aluminium and stainless steel based housing with no plastic components, very efficient optical system with tempered glass, electronic ballast with intelligent lighting control functions e.g. dimming, time control, lamp failure alarm through Web- interface. Lamp life 16.000 hours.

During 2007 a total of 3.500 units have been installed on Swedish roads and/or streets.

Installation Road Lighting (commissioned in April 2007)

Previous light source: 150 Watt High Pressure Sodium

New light source: 70 Watt Ceramic Metal Halide

Number of poles: 50 Units

Distance between poles: 40 Meters

Pole height :10 Meters

Number of hours that the lights are on: 4.000 hours per year

Power consumption in old installation: 169 Watt (HPS + Ballast)

Power consumption in new installation: 81 Watt (CDM + Ballast)

Saving by each fixture: 352 KWh/year (the effects of time control and dimming have not been measured).

Reduction in CO₂ emissions:317 Kg/year for each unit.

VG Nicolaus GmbH & Co. KG



Country:	Germany
Category:	Production Sites
Year :	2007



VG Nicolaus GmbH & Co. KG in Kempten, Germany, is one of the production sites of Van Genechten Packaging Company. The GreenLight project of this Partner concerned the refurbishment of the print office and of the processing hall.

The implemented technology has this result: installation of T5/T8 lamps with automatic light control and presence depending controlling, glare protection according to demand.

The electricity consumption before the refurbishment was 922.688 kWh/year; after the intervention decreased to 276.276 kWh/year with a saving of 646.412 kWh/year, a very good result.

The total investment was of 330.000 Euro with a saving cost of 84.000 Euro /year.

VLB - Zentrale Ansprechpartner der Verkehrslenkung Berlin



Country:	Germany
Category:	Street Lighting
Year:	2007



The **Traffic Headquarters Berlin (VLB)** is a special Agency of the Senate Department for Urban Development. It regulates the flow of traffic focused on Berlin's main road network.

The GreeLight project of this Partner concerned the refurbishment of 100 high voltage traffic lights with the modernisation toward LED-technology.

In the future it is planned the refurbishment of 618 traffic lights by the year 2011.

The electricity consumption before the refurbishment was of 5.500.000 kWh/year; after the intervention decreased to 5.000.000 kWh/year with a saving of 500.000 kWh/year.

The total investment amounted to 2.000.000 Euro.

Vossloh-Schwabe Optoelectronic GmbH & Co.



Country:	Germany
Category:	Production Sites
Year:	2008



VS Optoelectronic is part of the Panasonic Electric Works Vossloh-Schwabe Group and of the competence centre for hi-tech LED technologies.

In 2008 VS Optometric substituted the magnetic ballasts with electronic ballasts and fluorescent lamps within the company building. Furthermore the company installed motion detectors for switching off lightings in rest rooms and changing rooms when the last person leaves. Throughout the European GreenLight programme the entire location electricity used is made from renewable sources and environmental awareness of the employees was improved.

Consumption before: 108 kWh/year - Consumption after: 79 kWh/year

Energy saving: 29 kWh/year

Power before: 36 kW - Power after: 26,3 kW

Lighting hours: 3.000 hours/year

Investment cost: 15.000 Euro

Energy cost saving: 3.300 Euro

Payback time: 4,5 years.

Vytauto Didžiojo Universitetas - VDU



VYTAUTO DIDŽIOJO
UNIVERSITETAS
— MCMXXII —

Country:	Lithuania
Category:	Educational Buildings
Year:	2008



The Vytautas Magnus University is a public university in Kaunas, Lithuania, founded in 1922.

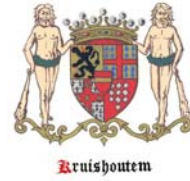
The floor area upgraded with the GreenLight project has a surface of 7.865 m² on a total area of 49.957 m². The old type of fluorescent magnetic lamps 38 mm diameter, have been changed into 26 mm diameter fluorescent ones, with electronic dimmable ballasts.

The total luminaries power decreased from 172 W to 72 W.

The consumption before this intervention amounted to 278.737 kWh/year and, due to the new measures, decreased to 197.996 kWh/year with an energy saving of 80.741 kWh/year.

Payback is expected in 4,2 years.

VZW Sportdienst Kruishoutem



Country:	Belgium
Category:	Sport Halls
Year:	2007



The GreenLight project concerns the relighting of a **sport complex** of 1.800 m² in **Kruishoutem City**, Belgium. The old luminaries with magnetic ballast have been changed with electronic ones (dimmable and not-dimmable) and the painted reflector has been changed with aluminised one.

The investment for this intervention will be paid back in 6 years.

The lighting electricity use before amounted to 138.761 kWh/year and after decreased to 52.451 kWh/year with a saving of 86.310 kWh/year.

The running costs decreased from 12.481 Euro/year to 4.200 Euro/year with a saving of 8.281 Euro/year.

WAMEX SP. Z.o.o



Country:	Polonia
Category:	Production Sites
Year:	2009



The **WAMEX S.p. o.o.** is a specialist manufacturer and dealer of high quality power transmission technology.

In 2009 the Company started to invest and build a new office building in Warsaw. Following the general energy-saving concept and in order to take care of positive ecological balance of environment, the company decided for a building that will use renewable energy technologies to produce as much energy on-site over a year as the building use to operate. It will be powered by solar panels, wind turbine and heat pump.

The lighting installation is designed on the basis of state of art TL5 technology for the whole area of warehouse as well for the offices. There will be 57 luminaries TL5 for a total installed power for lighting of 3,8 kW. In the main hall area will be used the TL5 2x80 W HF trucking system with efficient optics (8 fittings), while the office area will be equipped with TL5 fluorescent lamps with HF, presence detection and daylight system for energy saving. Target of the project was to maximize the daylight usage. The average installed power per m² is at record low level of 9 W/m², which makes the whole concept a very interesting example of energy efficiency.

With these choices the company will reduce the energy consumption for lighting purposes at 50% comparing to light fitting with conventional ballasts and standard technology.

XELLA Porobeton d.o.o



Country:	Slovenia
Category:	Production Sites
Year:	2009



The company **Xella Porobeton** located in Kisovec, close to Zagorje, is a producer of construction materials under trademark YTONG.

Company Xella Porobeton HR Ltd. is a key promoter and a seller for Ytong building materials on Croatian market. Since March 2004, company has become a part of the international group Xella Baustoffe GmbH. Precisely through daughter company Xella Porobeton HR Ltd. it has transferred experience to Croatian market, but has also developed modern elements for building energy-efficient construction for world market.

The Company took a complete lighting renovation in 2009 in the production hall. All renovations consist in new modern Pulse Start Metal Halide Lamps instead of existing High Pressure Mercury Lamps. Company will achieved significant energy saving but also improved lighting conditions.

The achieved saving amounts to 115.000 Euro/year (saving 35%).

Payback is expected in 3-5 years.

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European Commission

EUR 24698 EN – Joint Research Centre – Institute for Energy

Title: 2nd Report of the European GreenLight Programme 2005-2009

Author(s): Paolo Bertoldi, Barbara Cuniberti

Luxembourg: Publications Office of the European Union

2011 – 157 pp. – 21,0 x 29,7 cm

EUR – Scientific and Technical Research series – ISSN 1018-5593

ISBN 978-92-79-19073-5

doi:10.2788/2539

Abstract

The goal of substantially improving end-use energy efficiency and promoting the use of renewable energy sources is a key component of the EU energy and environmental policies, shared by all EU Member States. The European Commission Directorate General Energy contributes to this goal through a series of actions under the "Intelligent Energy - Europe" Programme. In addition, given the large share of energy consumption in buildings and the large cost effective energy saving potential, special attention has been dedicated to the building sector and the lighting in particular..

The GreenLight Programme (launched in January 2000) is one of these actions, aimed specifically at private and public non-residential lighting.

The GreenLight Programme is a European Commission voluntary programme through which non-residential building owners and occupiers, being private or public organisations, are aided in improving the energy efficiency of their lighting systems. Any enterprise, company or organisation (hereinafter defined as "organisation") planning to contribute to the GreenBuilding Programme objectives can participate. This report is a collection of most of the lighting efficiency upgrades undertaken by Partners in the period 2006 to 2009.

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