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The European GreenLight Programme Efficient Lighting Project Implementation Catalogue 2010

Paolo BERTOLDI

Marion ELLE

2012

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Joint Research Centre

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Institute for Energy and Transport

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Contents

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 third catalogue 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 2010 until the end of 2011. 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.

The GreenLight Programme is a voluntary activation programme launched by the

European Commission in 2000 to increase non-residential lighting energy efficiency. By the end of 2010, over 653 Partners from across the European Union, plus Norway and Switzerland, participated in GreenLight. This report assesses the achievements of the scheme in the year 2010. For 2010, 48 new Partners could be welcome into the programme.

GreenLight Programme 2011 Awards Winners Sustainable Energy Week, 12 April 2011, Brussels (Belgium)

The scope of the current analysis is to provide an insight into how the programme developed during the assessed period, both in terms of type and scope of new registrations, energy, cost savings and technologies involved. The comparison is based on the previous evaluation reports – the 2000-2008 Report, which represents an assessment of the programme over the period of eight years, and the 2009 Report, which contributed an update for the period of one year. Regular spreadsheet analysis was used for the evaluation. Four Partners within 2010 registered more than one distinct project, therefore the main basis for the analysis are the 66 projects, which were listed by the 48 Partners in 2010.

In 2006 a special emphasis was started to enlarge the GreenLight programme to the new Member States of the European Union. As a result the network of Partners further expanded. However, in the year 2010, no new Partners from the New Member States were registered. In total, Partners within 2010 came from only 9 countries of the European Union and Croatia.

The 2000-2008 Report showed a total saving by the end of 2008 of 241 GWh/a. In 2009, an additional saving amounted to about 16 GWh/year. The savings reported by Partners joined until the end of 2010 amount to about a very respectable additional 40.7 GWh/a – representing the highest total of savings achieved by new partners within the scope of the programme since 2003 and the third largest annual savings as well fourth largest average savings reached per partner since the beginning of the programme. Only 30 % of the projects in 2010 were outdoor projects. More than half of the total of savings was achieved in indoor projects in the category of “Retails and Supermarkets”. In total, all 653 GreenLight Partners reach the savings of 297 GWh of electricity saved annually through efficient lighting at the end of 2010.

Savings were achieved primarily through converting to increased energy efficient lamps. Here the technology of light-emitting diodes (LED) has the highest share of almost 40 % of all reported changes and was both applied in indoor and outdoor projects. This development is specifically noteworthy since in the previous reporting period of 2009 not a single conversion to LED was reported. Unfortunately, for 36 % of the partners no specific data was available on any applied lamp changes. 40 % of the Partners enhanced also their lighting control systems.

In the year 2010 the positive development in terms of savings is especially convincing. However, the number of newly registered partners is not as positive as in the previous years. It might be due to expectable awareness decline inherent in long-term activation campaigns – GreenLight has now been running for more than a decade – which can only be overcome by addressing new target groups and refining the campaign instruments, all of which has budgetary and resource implications.

Street Lighting

City of Klanjec

Country
Croatia

Category
Street Lighting

Typology
Outdoor

Year
2010

Total savings
153 MWh/a

Effective Savings
34 %

Example of the lamps before (above) and after (below) the GreenLight intervention

City of Klanjec is positioned in north western part of Croatia on border with Slovenia. In 2009 the city administration started the modernization and new installations of public lighting in the wider area of the city. The GreenLight intervention of modernization the public lighting is divided into five phases during five years and included reconstruction of streets and roads lightning in the wider city area. The old lightning system is based on high pressure mercury bulbs, which is now being exchanged by new technology based on high pressure sodium and ceramic metal halide bulbs with high efficiency electronic ballasts for power regulation during late night hours. First phase of the project has been finished in 2010 with around 10% of all existing public lighting sources including lamps and bulbs modernized.

City of Ozalj

Country
Croatia

Category
Street Lighting

Typology
Outdoor

Year
2010

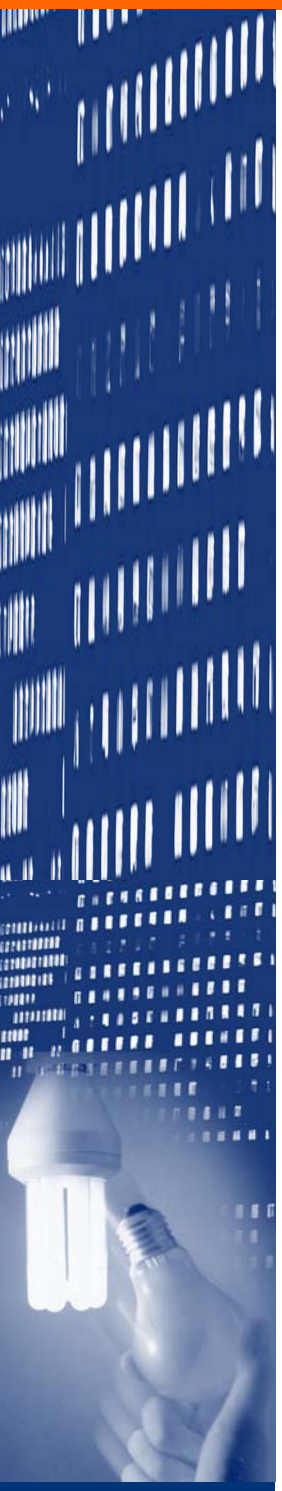
Total savings
396 MWh/a

Effective Savings
38 %

Example of the lamps before (above) and after (below) the GreenLight intervention

The City of Ozalj is situated in the western part of Karlovac County on the border with Republic of Slovenia. In 2009 the city administration started the modernization and new installations of public lighting in the wider area of the city. The GreenLight intervention of modernization the public lighting is divided into five phases during five years and included reconstruction of streets and roads lightning in the wider city area. The old lightning system is based on high pressure mercury bulbs, which is now being exchanged by new technology based on high pressure sodium bulbs with high efficiency electronic ballasts. The first phase of modernization of public lightning is planning was finished at the end of 2010

City of Tilburg



Country	Category	Typology
Netherlands	Street Lighting	Outdoor

Year	Total savings	Effective Savings
2010	86 MWh/a	44 %

Tilburg renovated a large number of old outdoor luminaries equipped with a TLS 20W lamp, which cause specifically high maintenance costs due to the short lamp lifetime. One renovation project is called “LED’sGO” because LED have replaced the old luminaries. In addition further interventions were carried out on the CityRing and Heikantlanan as well as implementing “lighting on demand”.

GREENLIGHT AWARD WINNER 2011

City of Zaprešić

Country
Croatia

Category
Street Lighting

Typology
Outdoor

Year
2010

Total savings
1 712 MWh/a

Effective Savings
57 %

Average lamp before (above) and after (below) the intervention

In 2009 the City of Zaprešić started modernization and new installations of public lighting in the wider area of the city. The old system was based on high pressure mercury bulbs, which were exchanged with high pressure sodium and ceramic metal halide bulbs with high efficiency electronic ballasts for power regulation during late night hours. The first phase of the project has been finished in 2010 with the exchange of 20 % of all public luminaries and bulbs.

GREENLIGHT AWARD WINNER 2011

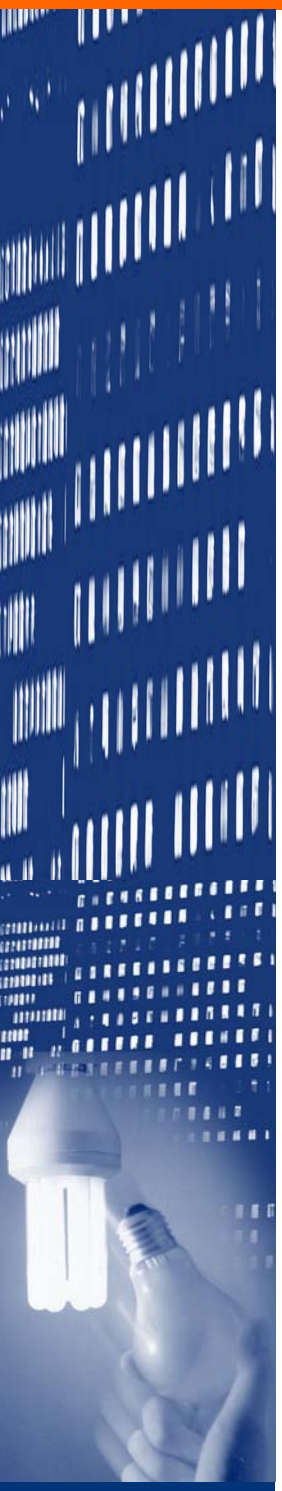
Donja Stubica

Country	Category	Typology
Croatia	Street Lighting	Outdoor
Year	**Total savings**	**Effective Savings**
2010	153 MWh/a	34 %

Example of the lamps before (left) and after (right) the GreenLight intervention.

City Donja Stubica is located in the central part of the northern slopes of the mountain Medvednica. In 2009 the city administration started the modernization and new installations of public lighting in the wider area of the city. The GreenLight intervention of modernization the public lighting is divided into five phases during five years and included reconstruction of streets and roads lightning in the wider city area. The old lightning system is based on high pressure mercury bulbs, which is now being exchanged by new technology based on high pressure sodium and ceramic metal halide bulbs with high efficiency electronic ballasts for power regulation during late night hours. First phase of the project has been finished in 2010 with around 10% of all existing public lighting sources including lamps and bulbs modernized.

Gemeente Utrecht



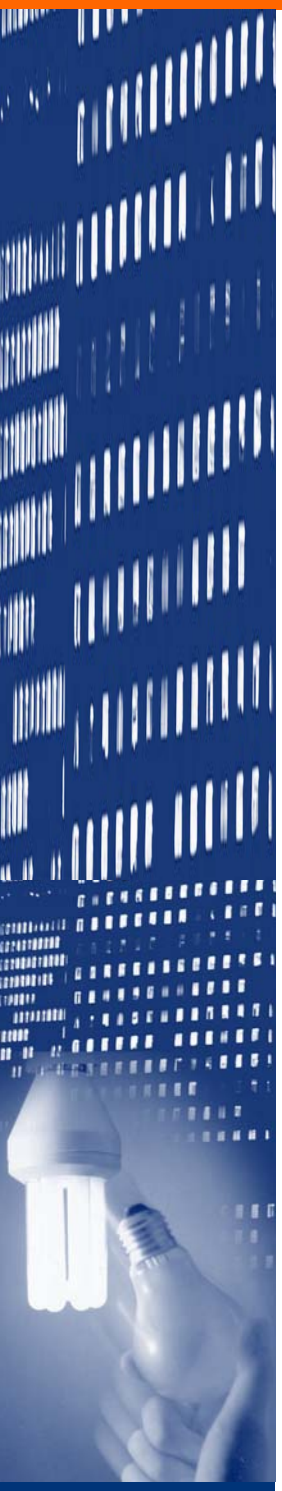
Country	Category	Typology
Netherlands	Street Lighting	Outdoor

Year	Total savings	Effective Savings
2010	437 MWh/a	30-80 %

Standard lighting column for main bicycle paths (left) and the new LED lighting (right).

The Gemeente Utrecht implemented three different GreenLight projects covering renovation of street lights in general, renovating the lighting on a motor way as well as illumination of cycle paths. In generally the old street light installations were equipped with high pressure sodium or compact fluorescent lamps. Mostly not equipped with dimming capability. The renovation projects have been part of a larger project with the objective reducing the CO_2 emissions of the city by 6% in 2012.

Gemeinde Königsfeld



Country	Category	Typology
Germany	Street Lighting	Outdoor

Year	Total savings	Effective Savings
2010	55 MWh/a	56 %

Special measurement points were defined and analysed in detail (left). The Zinzendorfplatz in Königsfeld will from now on illuminated by modern LED in historical lamps. The LED module installed has the capacity of 53 Watts (right).

The community has modernized the street lighting in the inner town area which is part of a wider scheme to become a energy efficient community. The technology adapted were light emitting diodes (LED).

GREENLIGHT

Gemeinde Mönchweiler

Country	Category	Typology
Germany	Street Lighting	Outdoor

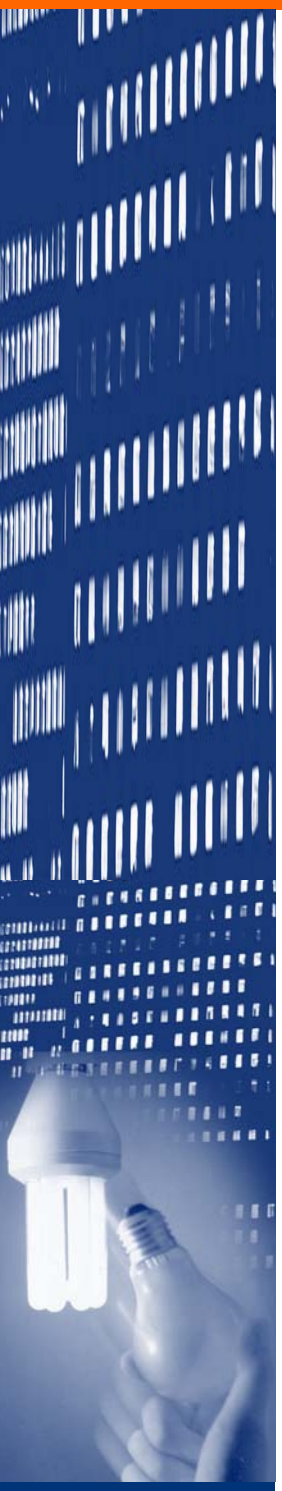
Year	Total savings	Effective Savings
2010	6,3 MWh/a	39 %

Ulrich Köngeter, Manager of the Utilities Villingen-Schwenningen (SVS), the Mayor of Mönchweiler Friedrich Scheerer as well as Werner Kreutzer from SVS initiating the modernisation.

The community Mönchweiler is a member of the LED-network in the Black Forest region, which consists of four communities promoting energy efficient lighting by mutual activities. The partner communities work close together to reduce energy consumption, carbon emission as well as energy costs. To reach this aim the best available lighting technology, LEDs, in indoor and outdoor areas were used.

Within a time period of two years, the community realized another project using LEDs in outdoor areas. Different streets in an industrial and commercial area were modernized. A construction consisting of 73 light points equipped with sodium and mercury-vapour-lamps were substituted by 73 light points using LED technology with a power from 40 to 50 W. The installed power is reduced of 5.4 kW to 3.3 kW so that savings up to 39 % can be realized. In one of the streets the illumination will be powered by installed solar panels. Additionally and intelligent control with motion sensors were adapted to the system.

Gemeinde Uedem



Country
Germany

Category
Street Lighting

Typology
Outdoor

Year
2010

Total savings
113,5 MWh/a

Effective Savings
45 %

Examples of lamps used with an efficiency factor of more than 45 % (left) and 78 % (right).

The community has modernized the street lighting in the inner town area which is part of a wider scheme to become a energy efficient community. The technology adapted were light emitting diodes (LED). The modernization included the installation of electronic ballast, optimized luminaries, and control units allowing dimming. The community was supported by the regional energy agency. The company installing the new lighting signed a contract with a guaranteed saving of 21.500 Euro per year. The calculated savings in reduction of carbon emission is 105 tons annually. This could only be achieved by modernizing the entire lighting systems with 864 luminaries and 26 switch cabinets.

Municipality of Marija Gorica

Country
Croatia

Category
Street Lighting

Typology
Outdoor

Year
2010

Total savings
356 MWh/a

Effective Savings
57 %

Type of lamp before (above) and after (below) the intervention)

The modernisation project was divided in two phases, it includes reconstruction of streets and roads lightning in the wider city area. Old lightning system based on high pressure mercury bulbs was substituted by new technology based on high pressure sodium bulbs with high efficiency electronic ballasts. First phase of the project has been finished in 2009 (around 50% of all existing public lighting sources including lamps and bulbs have been modernized) and second phase was finished by the end of 2010.

Municipality of Pušća

Country
Croatia

Category
Street Lighting

Typology
Outdoor

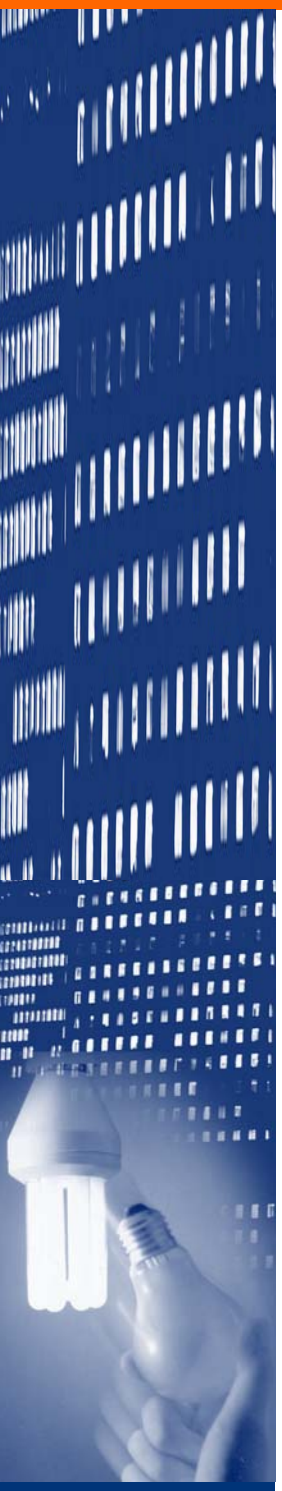
Year
2010

Total savings
120 MWh/a

Effective Savings
56 %

GreenLight project included reconstruction of streets and roads lightning in the wider city area. Old lightning system which was based on high pressure mercury bulbs was re-placed with high pressure sodium bulbs with high efficiency electronic ballasts. The intervention was finished in 2010 with around 75% of all existing public lighting sources including lamps and bulbs undergoing modernization

Stadt Cottbus



Country	*Category*	*Typology*
Germany	**Street Lighting**	**Outdoor**

Year	*Total savings*	*Effective Savings*
2010	**1 732 MWh/a**	**30 %**

Not background information available

Stadt Freiburg im Breisgau

Country	Category	Typology
Germany	Street Lighting	Outdoor

Year	Total savings	Effective Savings
2010	1 918 MWh/a	50 %

Example of a old mercury high pressure lamps before (above left) and a new sodium vapour flat glass lamp after (above right) the GreenLight intervention.

The intervention comprised the replacement of mercury vapour lamps to sodium vapour lamps in the entire municipal area. Within the year 2010 a total of 1,869 luminaries were exchanged.

Stadt St. Georgen

Country
Germany

Category
Street Lighting

Typology
Outdoor

Year
2010

Total savings
38 MWh/a

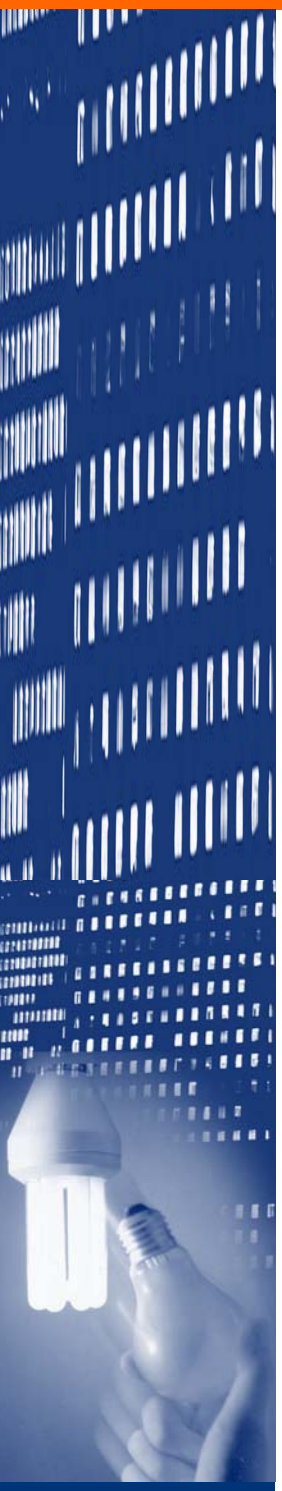
Effective Savings
more than **67 %**

Types of lamps NOVARA und RESIDENZA *used in St. Georgen (above). Students from the Technical College Furtwangen analysed the results and effects of the modernised lighting (left).*

The community has modernized the street lighting in the inner town area. Especially, the illumination of the market square was not adequate. The construction consisting of 124 light points equipped with sodium and mercury-vapour lamps which a capacity of 75 to 165 W have been substituted by 64 light points using LED technology with capacity from 26 to 50 W. Thus 7.688 kg of CO_2 emission can be saved annually.

GREENLIGHT AWARD WINNER 2011

Stará Boleslav / Brandýs nad Labem



Country	*Category*	*Typology*
Czech Republic	**Street Lighting**	**Outdoor**

Year	*Total savings*	*Effective Savings*
2010	**280 MWh/a**	**47 %**

The savings were achieved through upgrading of the public lighting system in Stará Boleslav Municipality. The old mercury discharge lamps were exchanged for new HP sodium discharge lamps and also new-generation ceramic metal halide lamps. Electricity consumption decreased by 280 269 kWh per year (47 %). In monetary terms, the savings are 619 371 CZK compared to base year. The payback time of the measures is 5.54 years, with NPV over 8 000 000 CZK and IRR 18,43 %.

Technische Betriebe Dormagen AöR

Country	Category	Typology
Germany	Street Lighting	Outdoor

Year	Total savings	Effective Savings
2010	1 390 MWh/a	44 %

Exchange of mercury lamps to sodium vapour lamps and exchange of 349 out-dated luminaries, replacement of the self-ballasted lamps and implementation of autotransformer, installation of light emitting diodes. Since the beginning of the measures in 2008, some 45 % of energy consumption equalling to 1.4 million kWh and 830 tons of carbon dioxide were saved annually. When the energy saving contracting will terminated in 2013, the annual savings of 240.000 € will be used to finance other projects in the area of environmental protection and education.

Vyškovké Služby

Country
Czech Republic

Category
Street Lighting

Typology
Outdoor

Year
2010

Total savings
27,6 MWh/a

Effective Savings
47 %

No background information available

Service & Office Space

Banc de Sang i Teixits

Country	Category	Typology
Spain	Service & Office	Indoor
Year	**Total savings**	**Effective Savings**
2010	148 MWh/a	43 %

BANC DE SANG I TEIXITS

The Banc de Sang i Teixits is part of the Public Health Department in Catalonia ensuring the provision and proper use of blood and tissues and acting as a reference point for diagnostic immunology and advanced cell therapy.

	Before intervention	After intervention
Nº of luminaries	1006	1006
Nº of lamps per luminary	2	2
Type of lamp	D7	D7
Type of ballast	E7	E6
Reflector of luminary	F2	F3
Annual working hours	3,120	3,120
Installed capacity	110.66 kW	63.38 kW
Annual electricity consumption	345.259 kW	197.739 kW
Costs	0.12 €/kW	0.12 €/kW
Annual electricity bill	39,705 €	22,740 €

Bosch Vénissieux

Country
France

Category
Service & Office

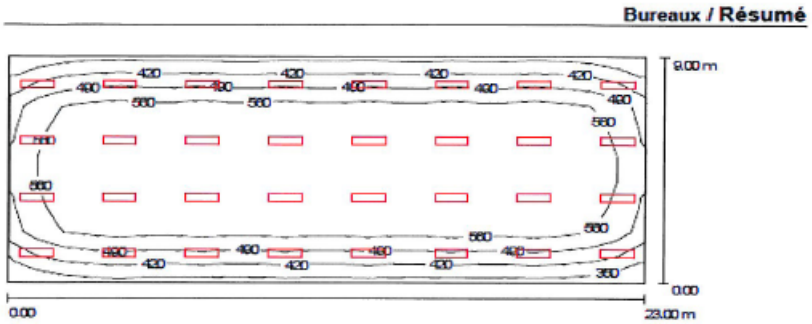
Typology
Indoor

Year
2010

Total savings
12 MWh/a

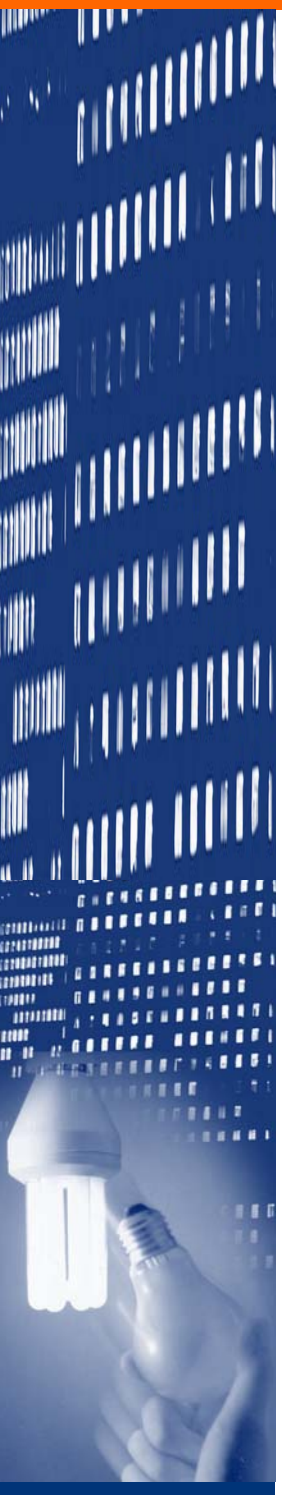
Effective Savings
65 %

Example of the lamps (above) and the installation plan (below) that were chosen for the intervention, some of them allowing a 85 % reduction in electricity consumption.



The seat of Bosch Diesel Systems in Vénissieux is specialised in producing diesel injection systems for vehicles with a staff of 550. The intervention included total modernization of the lighting systems within the office buildings 102 and 103. In total more than 100 luminaries were exchanged with from T8 to T5 luminaries. The intervention also included the installation of electronic ballasts. Overall maintenance cost was reduced.

ING Luxembourg



Country
Luxembourg

Category
Service & Office

Typology
Indoor

Year
2010

Total savings
79 MWh/a

Effective Savings
85 %

The indoor lighting at the bank branches in Cloche d'Or, Kirchberg and Rodange was improved by installing LED luminaries instead of halogen or 38mm-diametre fluorescent tubes.

BASELINE LIGHTING						POST-INSTALLATION LIGHTING					
Former luminaries	Watts	Costs φ	total W	Consumption Wh	Annual costs	Nouveau Luminaries/Ampoule	Watts	Costs φ	total W	Consumption Wh	Annual costs
Nautilus HQI 1x70W HQI-TS	70	0,95	10.095 Kw	35.331.579	4.593,11 €	ZUMTOBEL Crayon E165 1/12W LED	12	0,98	1.678 Kw	5.871.429	763,29 €
Nautilus HQI 1x150W HQI-TS	150	0,95	2.053 Kw	7.184.211	933,95 €	ZUMTOBEL Panos HG1/34W LED	34	0,98	451 Kw	1.578.571	205,21 €
spots 50W	50	0,95	3.895 Kw	13.631.579	1.772,11 €	OSRAM LED PAR16 5W	5	0,98	378 Kw	1.321.429	171,79 €
spots 50W DECO	50	0,95	2.421 Kw	8.473.684	1.101,58 €	ZUMTOBEL MICROS + OSRAM LED	5	0,98	235 Kw	821.429	106,79 €
ERCO 8&110 1x50W125mm	50	0,95	421 Kw	1.473.684	191,58 €	ALITTEX Série U111 10,5W LED	10,5	0,98	86 Kw	300.000	39,00 €
rail DECO lifts	290	0,95	4.884 Kw	17.094.737	2.222,32 €	LISTRA LED ACLS 144.FL 100 3K.01	25	0,98	408 Kw	1.428.571	185,71 €
ARTELUCE Constanza 1x150W	150	0,95	3.474 Kw	2.171.053	282,24 €	OSRAM DINT LL 30W/825 E27	30	0,98	673 Kw	420.918	54,72 €
Spots osram HALOPAR 30 1x75W	75	0,95	474 Kw	1.657.895	215,53 €	ALITTEX Série U111 10,5W LED	40	0,98	245 Kw	857.143	111,43 €
spots encastrés au sol 1x50W	50	0,95	1.316 Kw	4.605.263	598,68 €	AQLAMP WB 4045° 3,6W	3,6	0,98	92 Kw	321.429	41,79 €
Total:			29.032 Kw	91.623.684	11.911,08 €				4.245 Kw	12.920.918	1.679,72 €

Example of savings and calculations done for the office in the Route d'Esch Luxembourg.

GREENLIGHT AWARD WINNER

Krafftmeyer Food Innovation GmbH

Country
Germany

Category
Service & Office

Typology
Indoor

Year
2010

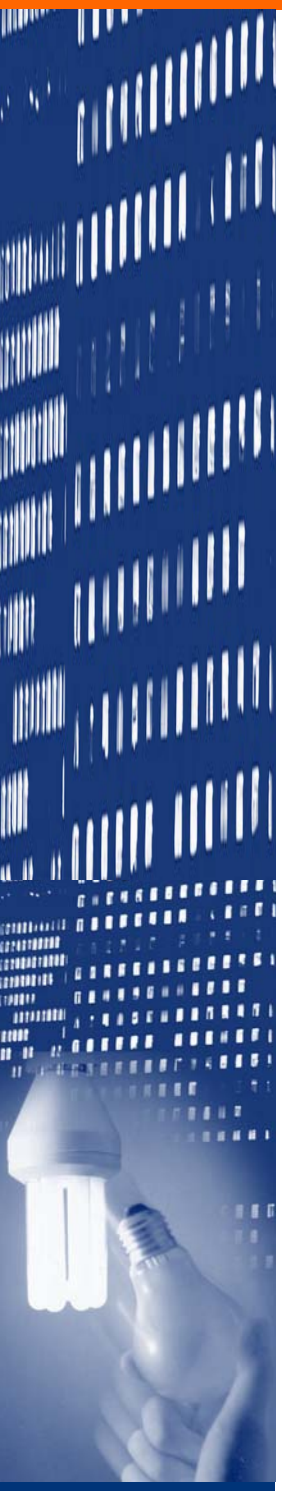
Total savings
14 kWh/a

Effective Savings
42 %

Pictures of the office building seen from the outside and inside in Hamburg.

The company Krafftmeyer Food Innovation is based in Hamburg and is a leading company in milling and production of advanced wheat products. For the intervention the lighting within the offices were modernized exchanging T8 luminaries with conventional ballast for high efficient luminaries with day light control. The cost savings are 2.800 € annually.

MBZ N.V.



Country
Belgium

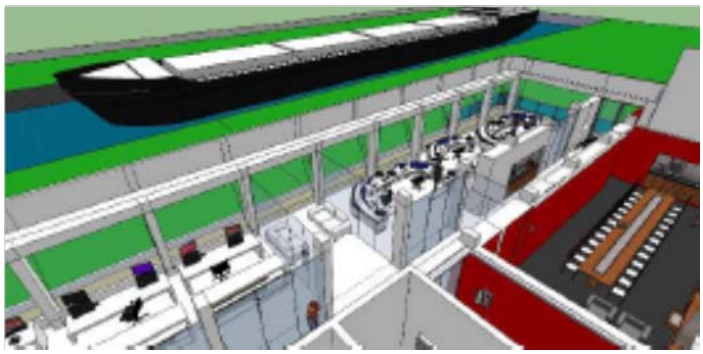
Category
Service & Office

Typology
Indoor

Year
2010

Total savings
19 MWh/a

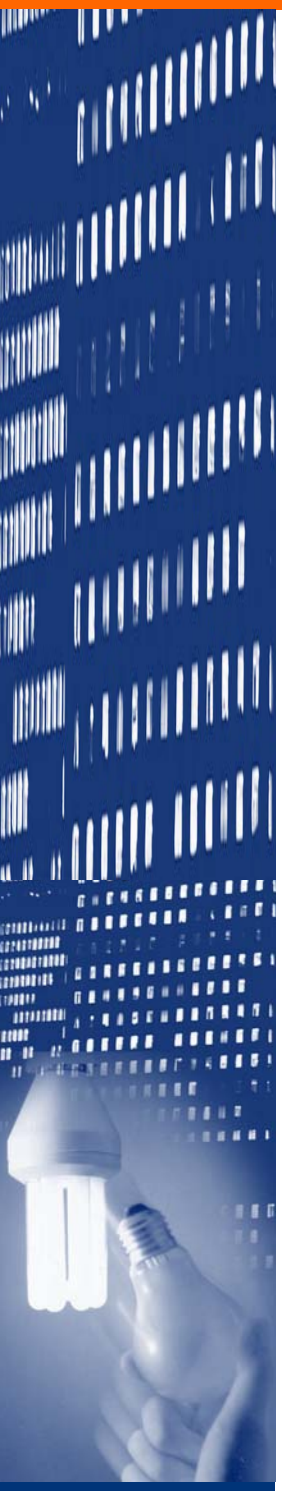
Effective Savings
76 %



The port of Bruges-Zeebrugge is managed by the "Maatschappij van de Brugse Zeevaartinrichtingen N.V." (abbreviated MBZ), which has modernised illumination during a complete remodelling and renovation of the 4th, 6th and 7th floors of the “Vandammehuis”. Within the scope of the renovation it was decided to install high-frequency lighting with presence detectors and daylight sensitivity.

GREENLIGHT AWARD WINNER 2011

Nestlé France



Country
France

Category
Service & Office

Typology
Indoor

Year
2010

Total savings
520,000 kWh/a

Effective Savings
86,7 %

The intervention was carried out in the Nestlé headquarters in Noisiel, where the illumination in the atrium and patio was modernised. 276 lights of 2x36 W with honeycomb reflectors and ferromagnetic ballasts were exchanged with 100 lamps of 1x28 W with aluminium reflectors and electronic ballast. The durability of the lights has been increased by 50 %.

GREENLIGHT AWARD WINNER 2011

Educational Buildings

Prokind Scholengroep

Country
Netherlands

Category
Educational

Typology
Indoor

Year
2010

Total savings
40 MWh/a

Effective Savings
66 %

Prokind Scholengroep is a school network in city of Spijkenisse, in the area of Rotterdam. The lighting in the schools De Veenvlinder, De Horst, De Piramide and Vogelenzang was modernised resulting in a reduction of 12,936 tons of CO_2 emissions per year .

GREENLIGHT AWARD WINNER 2011

Retail & Supermarkets

Unibail-Rodamco Shopping Centres

Country **Spain**

Category
Retail & Supermarkets

Year
2010

Total savings
5 228 MWh/a

Typology
Indoor

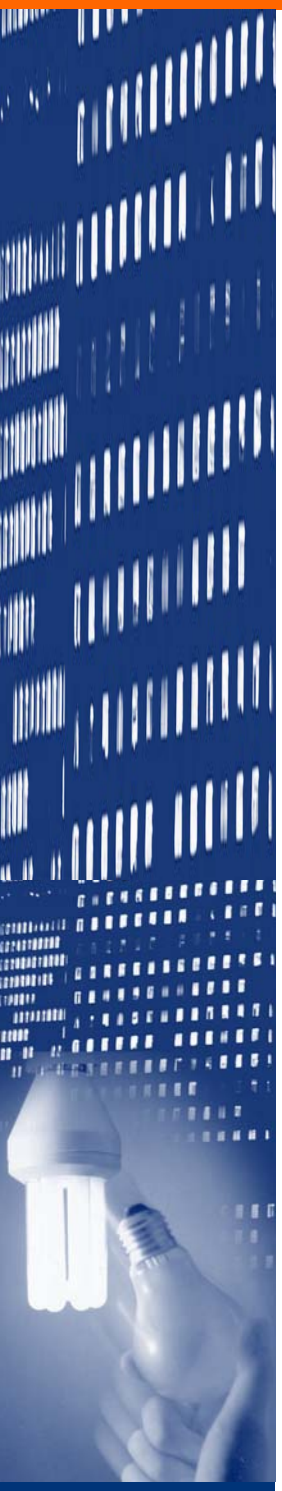
Unibail-Rodamco is the leading listed European commercial property operator, investor and developer active in shopping centres, offices and convention facilities. Within GreenLight improvement interventions were carried out in 10 shopping centres: Albacentre (Albacete), Los Arcos (Sevilla), Barnasud (Barcelona), Bonaire (Valencia), Equinqccio (Madrid), Les Glories (Barcelona), Habaneras (Alicante), Maquinista (Barcelona), Parquesur (Madrid), Vallsur (Valladolid).

Shopping Centre	Effective Energy Savings kWh/a	Savings in running costs €/a	Payback in years	Lamp type before intervention	Lamp type after intervention
Albacenter	93.564	1.247,00 €	3,90	Unspecified fluorescent	LED
Los Arcos	486.517	3.766,00 €	3,10	Unspecified fluorescent	LED
Barnasud	643.089	3.319,00 €	2,40	Unspecified fluorescent	LED
Bonaire	692.841	7.596,00 €	3,70	Unspecified fluorescent	LED
Equinoccio	190.910	3.766,00 €	5,30	Unspecified fluorescent	LED
Les Glories	941.138	8.707,00 €	3,20	Unspecified fluorescent	LED
Habaneras	469.787	2.128,00 €	2,30	Unspecified fluorescent	LED
Maquinista	738.877	7.802,00 €	3,60	Unspecified fluorescent	LED
Parquesur	744.678	8.602,00 €	3,10	Unspecified fluorescent	LED
Vallsur	226.987	1.532,00 €	3,80	Unspecified fluorescent	LED

New LED 1 X 21 W and 70 W projectors in the Barnasud mall, Barcelona (above left) and new LED tubes in the subterrean parking lots in Los Arcos, Sevilla (above right).

GREENLIGHT AWARD WINNER 2011

Delhaize Belgium



Country
Belgium

Category
Retail & Supermarkets

Year
2010

Total savings
20 694 MWh/a

Effective Savings
more than **59 %**

DELHAIZE GROUP

From January 2004 until December 2011 130 retail stores in Belgium have undergone improvements in lighting. The number of fluorescence and metalhaide luminaries has been reduced and LED fixtures used systematically to replace standard halogen accent lighting. The total carbon emission savings achieved is 5,743 tons per year. The lighting was improved substituting 300 à 500 lux on displayed products and 800 lux between racks by 400 à 700 lux on displayed products and 1100 lux between racks.

GREENLIGHT

GREENLIGHT AWARD WINNER 2011

Hotels & Restaurants

Mercure Wien City

Country
Austria

Category
Hotels & Restaurants

Typology
Indoor

Year
2010

Total savings
74,7 MWh/a

Effective Savings
48,4 %

GREENLIGHT

Logistics & Transport

Stadt Hamburg
Landesbetrieb Straßen, Brücken und Gewässer

Country
Germany

Category
Logistics & Transport

Typology
Outdoor

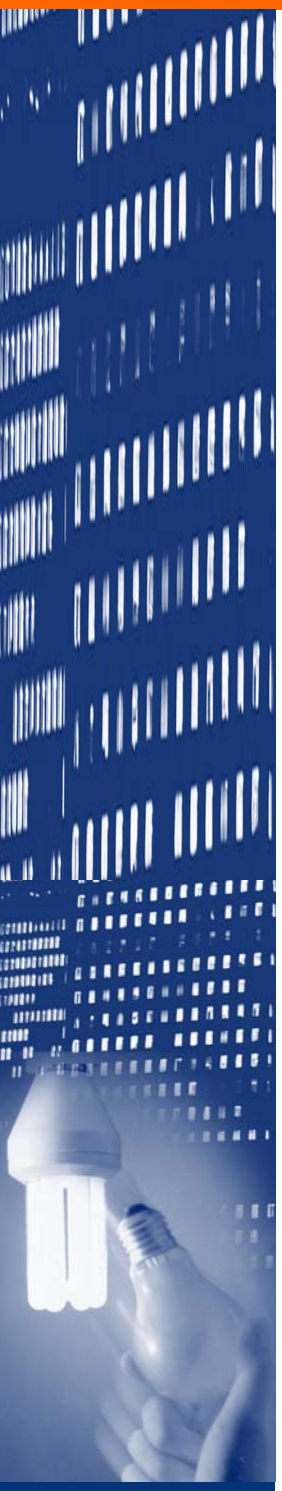
Year
2010

Total savings
3 391 MWh/a

Effective Savings
67 %

Public Buildings

Ministère de l’écologie, de l’énergie, du développement durable et de la mer



Country
France

Category
Public Buildings

Typology
Indoor

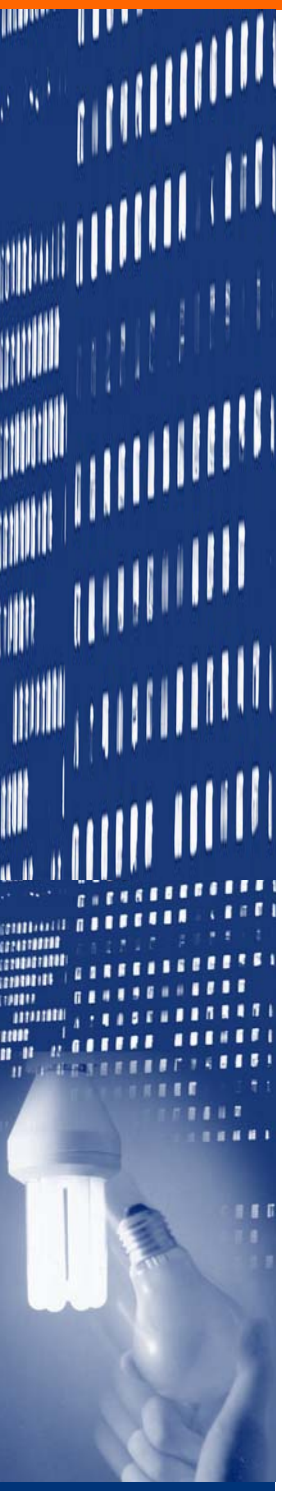
Year
2010

Total savings
370 MWh/a

Effective Savings
57 %

Sports Facilities

Gemeente Hoeselt



Country
Belgium

Category
Sports Facilities

Typology
Indoor

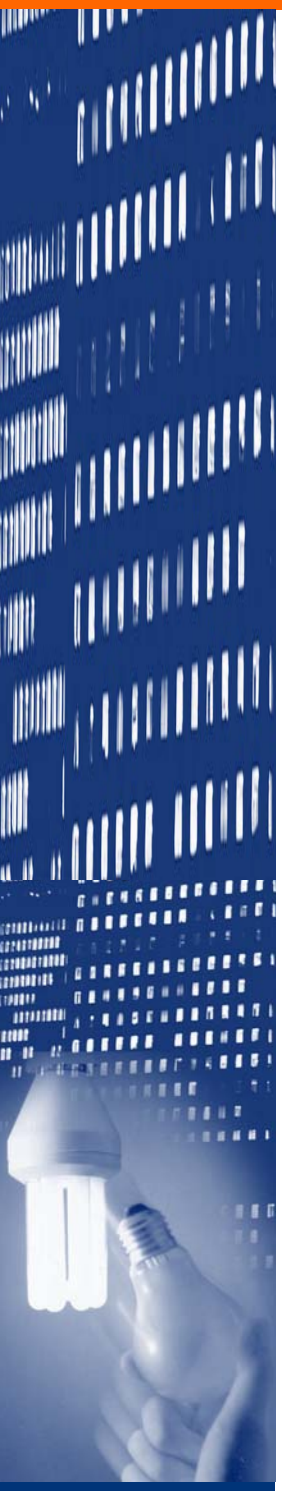
Year
2010

Total savings
109 MWh/a

Before the intervention the lighting within the sports facility consisted of 119 luminaries with an installed power of 23,7 kW. After the intervention the lighting comprised 98 luminaries with an installed power of 10,9 kW. In total some 109 MWh were saved annually and a payback period of 4 years reaches. In total this resulted in 84 tons of carbon emission per year being reduced.

Production Sites

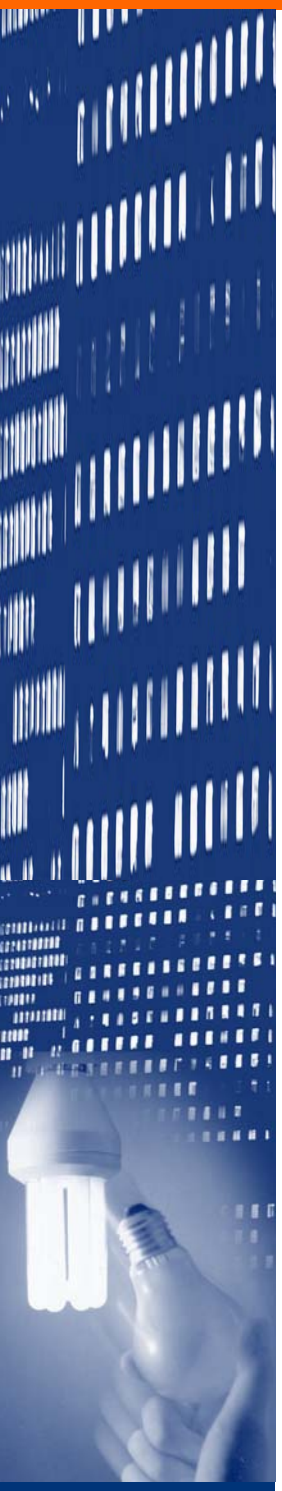
Areva NP



Country	Category	Typology
France	Production Sites	Indoor

Year	Total savings	Effective Savings
2010	35 kWh/a	22 %

CaetanoBus



Country	Category	Typology
Portugal	Production Sites	Indoor

Year	Total savings	Effective Savings
2010	53 MWh/a	9 %

Snecma Services MLH

Country
France

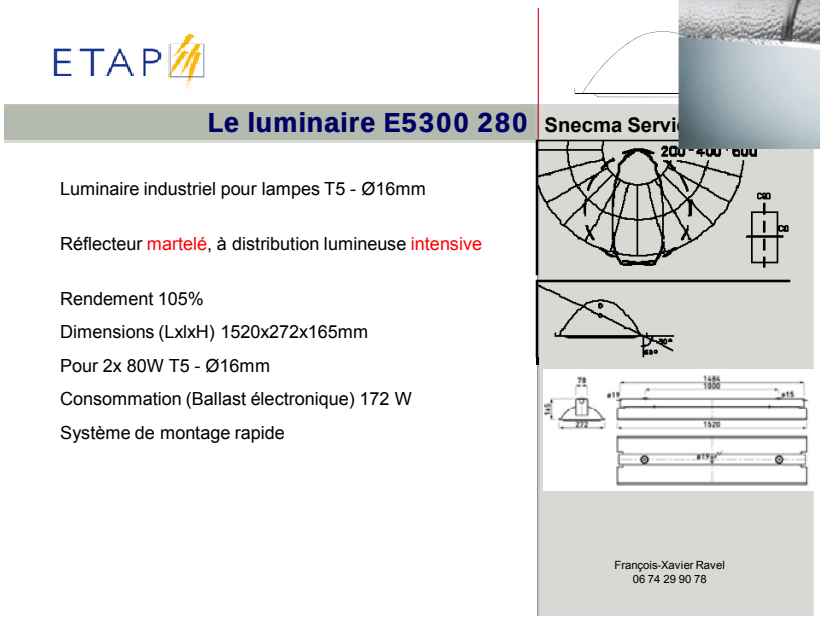
Category
Production Sites

Typology
Indoor

Year
2010

Total savings
319 MWh/a

Effective Savings
35 %



Snecma is a large production site based in Saint-Quentin-en-Yvelines with 750 employees specialised in construction of jet and aviation engines. The lighting systems were modernized installing standard high pressure sodium lamps with efficient fluorescent luminaries (T5) with electronic ballasts.

Tropicana

Country
France

Category
Production Sites

Typology
Indoor

Year
2010

Total savings
140 MWh/a

Effective Savings
46 %

Example of the lamps after (above) the GreenLight intervention.

Tropicana is company delivering fresh orange and other fruit juices. The plan within GreenLight was to renovate the entire indoor lighting of the production hall. Key aim was to replace the exiting luminaries with new one with electronic ballast.

Comparison of new and old lighting installed			
	Old installation	New installation	Saving reached
Lighting niveau	170 lux	350 lux	
Number of luminaries	700	700	
Total installed power	98 000 W	77 000 W	
Savings due to electronic control		-30%	
Total installed power Annual lighting houres	98 000 W 6 240	53 900 W 6 240	46%
Energy consumption	612 MWh	472 MWh	46%

European Commission
EUR 25374 – Joint Research Centre – Institute for Energy and Transport

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Abstract
This report presents the details of the lighting projects implemented by the GreenLight Partners in 2010.

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