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Green Footprint Tour
Copenhagen

PHILIPS
sense and simplicity

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Green Footprints

Many people from around the world have their eyes on Copenhagen and the UN Climate Change Conference in December 2009. Government leaders from 192 UN members are invited to participate in the Climate Summit to "seal the deal". Also participating are politicians and professionals elite from various NGOs, governments and businesses.

Phillips is playing a pivotal role in setting the stage for the Climate Summit.

Our energy-efficient lighting solutions utilize the most recent LED technology and are already in place all around Copenhagen, illuminating numerous urban locations. These solutions demonstrate the possibility of using efficient and beautifying lighting in streets, parks, buildings and other types of attractions, reducing energy consumption and CO2 emissions. At the same time, these energy efficient lighting solutions are making a difference in caring for the climate. This is our Green Footprints.

Philips' Green Footprints sends a strong message regarding the excessive use of energy. Many traditional lighting solutions date all the way back to the 1960s. An enormous amount of outdated lighting technology is still being used worldwide which means that we are consuming much more electricity than necessary.

Cities are responsible for 70% of the world's energy consumption, and therefore play an important role in limiting climate change. The governments of the world need to take a stand and invest in energy-efficient improvements, in order to set an example for the people and to benefit the environment, the economy and the work force.

In this booklet, we present several case stories that illustrate how Philips has renovated various urban locations around Copenhagen, resulting in huge savings using our new lighting technology. For example, we applied our Green Footprints to one of the biggest parks in Copenhagen, Nørrebroparken, and obtained an 80% reduction of energy at the bicycle paths. At the Scandic Palace Hotel, the lighting for the entire building was replaced with Philips energy-saving solutions, which led to a 62% reduction in energy costs. Another compelling example is the outdoor exhibition "100 Places to Remember Before They Disappear" at Copenhagen's central square, Kongens Nytorv. The exhibition displays photographs showing 100 places in the world threatened by climate change, and utilize Phillips LED lighting that gives a 81% reduction in energy consumption.

I sincerely hope these images and examples of Philips' Green Footprints will inspire people and governments to invest in green solutions and create their own green footprint. Thus contributing to a greener world at large.

Welcome to green Copenhagen.

Berthold Velthuis
Marketing Director, Philips Lighting Nordic

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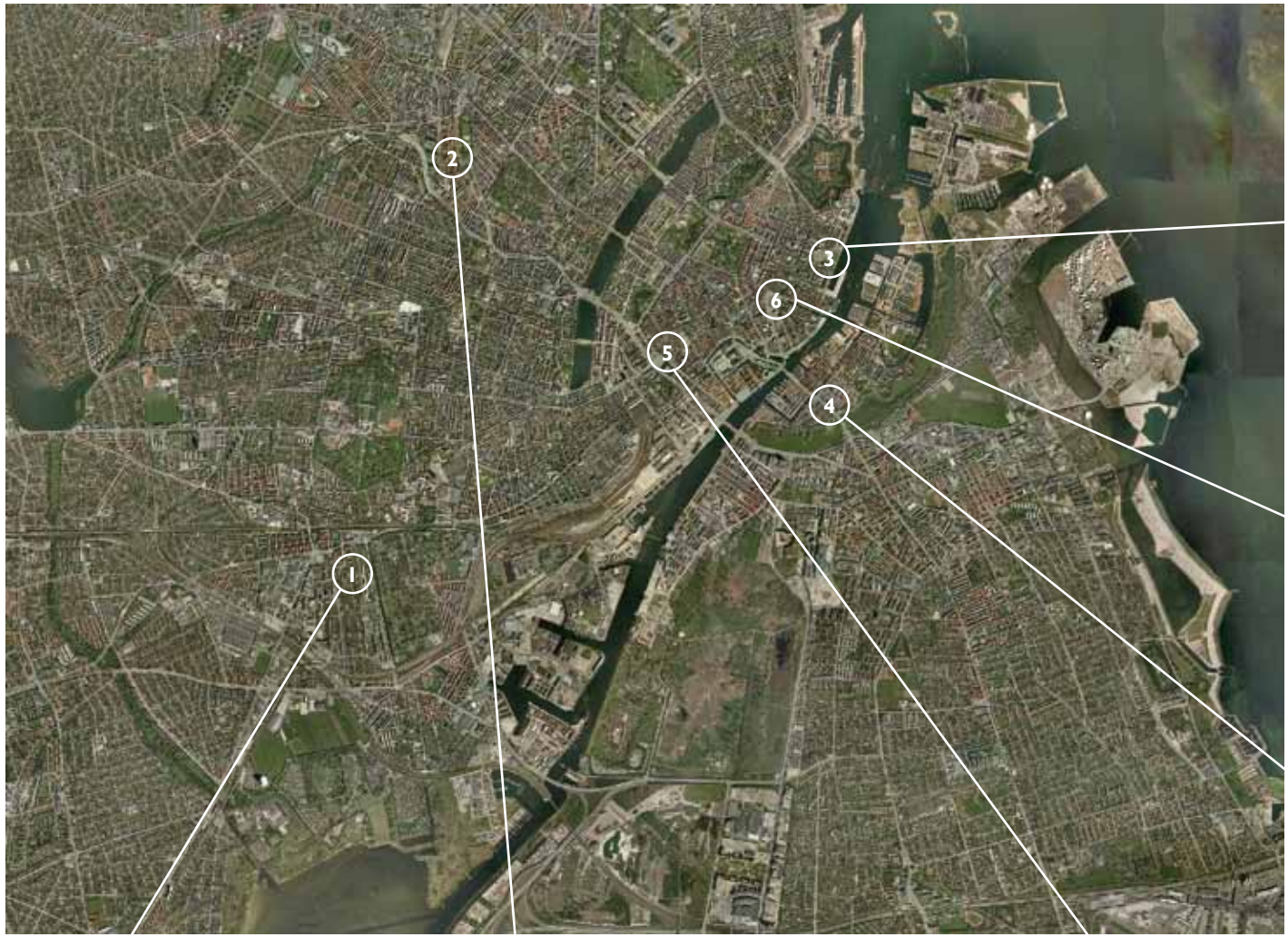


Toldbodgade
Copenhagen, Denmark


Kgs. Nytorv - Copenhagen, Denmark


Valbygårdsvej
Copenhagen, Denmark


Nørrebroparken - Copenhagen, Denmark


Scandic Palace Hotel
Copenhagen, Denmark


Christianshavns Torv
Copenhagen, Denmark


Blågårds Plads
Copenhagen, Denmark


Islands Brygge - Copenhagen, Denmark


Q8 - Copenhagen, Denmark


Bella Center
Copenhagen, Denmark


Bella Center - Copenhagen, Denmark

The LED version of the Copenhagen light fitting is an exact reproduction of an earlier generation of lighting.

LED bulbs make a classic light fitting 38% more energy-efficient

Facts

Developer
Municipality of Copenhagen
Location
Valbygårdsvej, Valby – Copenhagen, Denmark
Lighting type
Street lighting
Former light fittings
8 pcs. Copenhagener fittings with 42W PL-T
Light fittings in use
8 pcs. Copenhagener fittings with LED 22W
Energy savings
38 %

Background

The Copenhagener light fitting was designed by Philips and has been the most widely-sold fitting for street lighting in Denmark since the 1970s. It provides good screening to avoid glare and is robust enough to withstand vandalism. It has become the standard street light throughout the Copenhagen region, meaning that a switch to less energy-consuming alternatives will make a big impact.
Thus, it was decided to keep the existing facilities, when the lighting along Valbygårdsvej was to be renovated.

The solution

A new version of the Copenhagener fitting was developed with an LED bulb, keeping the well-proven qualities of the old fitting along with the overall appearance of the street lighting.

The advantages

The Copenhagener fitting provides energy-efficient, high quality lighting. Energy savings of 38% are achieved with the switch to LED bulbs along Valbygårdsvej plus savings on maintenance and bulb replacement due to the longer service life of LED bulbs. The existing masts could also be reused.

A higher level of illumination, better light distribution and less light pollution - with 80% energy savings.

Better, cheaper and more energy-efficient lighting for Copenhagen's cyclists

Facts

Developer
Municipality of Copenhagen
Location
Nørrebro Park - Copenhagen, Denmark
Lighting type
Lighting along bicycle paths
Former light fittings
15 pcs. case fittings with 125W HPL.
Illumination point height 4 metres
Light fittings in use
15 pcs. Mini Iridium LED NSO 26W.
Illumination point height 4 metres
Energy savings
80 %

Background

36% of Copenhagen's residents bike to work or school every day. The goal for 2015 is 50%, which is why the Municipality of Copenhagen is in the process of installing special traffic lights for cyclists in the city, creating new bicycle paths and green bicycle routes. These form an interconnecting network of pedestrian walkways and bicycle paths through recreational areas. The routes also connect with those in neighbouring municipality Frederiksberg and the capital region.
One of the green routes runs through Nørrebro Park, a popular oasis in the densely populated neighbourhood of Nørrebro. The park is a popular hang-out spot for sports, sunbathing and dog-walking, whilst during the mornings and evenings there is a heavy flow of cyclists through the park. During the dark winter months, good lighting is essential.

The solution

The Nørrebro Park bicycle route is lit by Mini Iridium LED, a small and extremely environmentally-friendly fitting ideal for refurbishment of existing lighting installations. And in this case, the old masts have been reused to house the new fittings.

Fordelene

Throughout the service life of the fitting, the Mini Iridium LED will use an average of 26W, compared to 125W in the past. In other words, a reduction in energy consumption of 80% is achieved plus the benefit of the LED fitting's long service life of 50,000 hours of operation, which will reduce maintenance significantly. Furthermore, the Mini Iridium LED yields more light, causes less light pollution and provides better lighting consistency along the bicycle path.

CitySpirit Cone is a
Philips “Green Flagship product.”

LED lighting providing major energy savings in royal surroundings

Facts

Developer
Municipality of Copenhagen
Location
Toldbodgade - Copenhagen, Denmark
Lighting type
Street lighting
Former light fittings
27 pcs. Grandville park lights with 80W HPL
Light fittings in use
27 pcs. CitySpirit Cone LED 30W
Energy savings
70 %

Background

Amalienborg is the principal residence of the Danish royal family. The elegant complex of four palaces was taken over by the royal family in 1794, and they have lived there ever since. Between Amalienborg and the harbour are the Amaliehave gardens, founded in 1983.
The street Toldbodgade divides Amalienborg and the Amaliehave gardens and thus provides access to some of Denmark’s most well-known and popular areas. Because this is such a well-known and prestigious area, the Municipality of Copenhagen decided to renovate this stretch of Toldbodgade with new energy-efficient lighting.

The solution

The light fitting selected was the CitySpirit Cone, a modern yet timeless fitting able to complement the historic Amalienborg and the more modern layout of the Amaliehave gardens.
CitySpirit’s clean lines, transparent materials and robust aluminium construction makes it work well in all types of surroundings, and its energy-efficient technology makes it a Philips "Green Flagship product".

The advantages

The 30W LED bulbs in the CitySpirit Cone save 70% of energy consumption compared to the previous lighting. The fittings are mounted in existing masts, which reduce installation costs. Running costs have been cut by utilizing LED bulbs requiring fewer replacements and less maintenance.

Modern LED lighting in a historic square in central Copenhagen.

Energy savings of more than 78% from environmentally friendly and sustainable lighting

Facts

Developer
Municipality of Copenhagen
Location
Christianshavns Torv
Lighting type
Street lighting with sculptural design and optimised energy consumption.
Former light fixtures
5 pcs. Helios 85W QL
Light fixtures in use
5 pcs. Grass LED 19W
Energy savings
78 %

Background

Christianshavns Torv in the centre of Copenhagen is a busy square with a library, shops, market, bus stops, Metro station – and many bikes and pedestrians. Two of its sides comprise the Christianshavns Canal and busy Torvegade, whilst the other two are lined with shops and apartments. Apart from the adjacent street lighting and light from the Metro station, the square has until now been lit by traditional light fixtures.

The solution

The design of the Grass fixture is inspired by the shape of grass. The light, slim and minimalistic shape is perfect for the small dimensions of LED bulbs, while the strong, simple construction presents a strong sculptural expression.
The Grass fixture can be fitted with between 6 and 15 diodes. One of the Christianshavns Torv fixtures features 15 Lumileds Luxeon Rebel Neutral White diodes. Each diode can be adjusted for direction to create a range of atmospheric lighting scenarios, for example security, intimacy or effect.

The advantages

Grass is a lighting fixture which focuses on the environment and sustainability. Energy consumption is low - the fixtures on Christianshavns Torv consume just 19W per fixture. The long lifetime of LED diodes of approx. 50,000 hours also makes maintenance cheap. Finally, the fixture is made of as few materials as possible – all recyclable.

"Scandic aims to achieve zero CO2 emissions by 2025"

Energy optimization with new lighting at the Scandic Palace Hotel

Facts

Developer
Scandic Palace Hotel
Location
Copenhagen, Denmark
Lighting type
Lighting in hotel rooms, corridors, restaurant, conference rooms, lobby etc.
Former light fittings
A total of 4,390
Light fittings in use
4,390 pcs. comprising:
EcoClassic30 28W - MasterLED 4W GU5.3
MasterLED dimmable 7W GU10
Luxspace - Fugato
Energy savings
62 %

Background

Over the last four years, the listed Scandic Palace Hotel on Rådhus-pladsen in Copenhagen has been undergone a total renovation with particular focus on comfort and design. A natural result of Scandic's environmental policy and the aim of achieving the green 'swan-label' by the end of 2009 means that all the light sources in the hotel have been replaced.
A key element of the replacement program was respecting and preser-ving the design and colour scheme laid out by architect Anton Rosen in 1910. Other considerations were energy reduction, running costs and the cost of light source replacement.

The solution

In collaboration with Philips, Scandic Palace Hotel worked out a master plan for its new illumination. The plan focused on the quality of light and colours provided by LED bulbs to match the original appearance of the building. Consequently, a warm, reddish shade was chosen as the key lighting colour.

The advantages

A reduction in electricity consumption of around 500,000 kWh p.a. is expected.
The 45,000 hour service life of the LEDs will also reduce running and labour costs. In addition, there will be a yet unknown saving due to reduced demand for air conditioning in the summer period, as LEDs give off less heat than traditional bulbs.

Excellent lighting quality
with major energy-savings.

Climate challenges illuminated

Facts

Project
"100 places to remember before they disappear"
Location
Kgs. Nytorv - Copenhagen, Denmark
Lighting type
Illumination of showcases with photos
Former light fittings
Traditional halogen
Light fittings in use
104 pcs. e-Graze 48LED
Energy savings
81% energy savings compared to former installation

Background

The aim of the project "100 places to remember before they disappear" is to promote awareness of climate changes. The exhibition consists of 100 photographs from one hundred different places around the world, which risk being wiped out or are severely threatened due to climate change.
Each location has been selected from the latest data available from the UN Climate Panel. The exhibition is on display in Copenhagen until 27th of December 2009. One of the partners of the "100 places" exhibition is Philips Lighting, encouraging consumers worldwide to switch to more energy-efficient lighting throughout a campaign lasting for four years.

The solution

Philips has supplied LED lighting for the 100 exhibits displayed on 50 double-sided showcases. The solution primarily consists of eW Graze Powercore, a linear lighting product optimised for radiation lighting and effect lighting on walls, needing high quality white light..

The advantages

eW Graze Powercore provides excellent lighting quality combined with major energy savings for new installations and upgrades.
The "100 Places" exhibition achieves energy savings of no less than 81% compared to traditional lighting solutions. The space-saving, low profile aluminium housing is especially designed for outdoor use.

"It's strange to think that the old lighting actually heated the fridges."

Shop Manager Jonas Lindhardt, Q8, Tagensvej, Copenhagen

Green service station with high energy savings

Facts

Developer
Kuwait Petroleum (Danmark) A/S
Location
Tagensvej 90 - Copenhagen, Denmark
Lighting type
Lighting for shop and refrigerated displays plus outdoor lighting
Light fittings in use
36 pcs. LED spot + Efix Micro
2 pcs. LED Freezer 15 W side
8 pcs. LED Freezer 25 W centre
8 pcs. City Swan Mini with 4 x 2W LED bulbs

Background

Q8 Denmark has a policy of making its service stations more climate- and environment-friendly. When the service station at Tagensvej in Copenhagen was reopened in November 2009 after complete renovation, it boosted a range of experimental new technology designed to provide sustainable energy and CO2 savings.
If the experiment proves to be a success, the new installations, including climate-friendly car wash, alternative heat recycling, new lighting for the refrigerated displays and indoor and outdoor lighting, will be installed at Q8's 178 other Danish service stations. Philips has supplied a range of new lighting solutions designed to cut electricity consumption at the station.

The solution

LED spotlights have been installed in the ceiling, reducing energy consumption, providing long service live and making precise illumination simple. 15 and 25W light fittings are used in the refrigerated displays to replace traditional 58W fittings. Outdoor lighting includes 8 pcs. CitySwan Mini fittings, each equipped with 4 LED bulbs and consumption of just 8W.

The advantages

Q8 expects the refurbished station to use significantly less energy than any of its other facilities, with savings of over 100% on lighting alone. At the same time Q8 achieves a softer, more customer-friendly indoor lighting, and lighting of the refrigerated displays which creates an almost magnetic attractive appearance. The LED lights in the displays also generate less heat, minimising the energy required for refrigeration.

A system not dependent on external electricity supply and can therefore be set up anywhere.

Solar energy lights the way to COP 15

Facts

Developer
Bella Center
Location
Copenhagen, Denmark
Lighting type
Street lighting with solar cell mast
Light fittings in use
19 pcs. CitySwan with 12W LED on Touché standalone solar cell masts
Energy savings
67 %
100 % of energy requirement provided by the solar cells on the mast

Background

Is it possible to create effective outdoor lighting which generates its own energy and is totally independent of an external supply? This question made Danish architect Bjarne Schläger MAA of BS light+architecture start working on designed light fittings for use in public areas. He joined forces with Denmark's leading supplier of electrical supply components Alfred Priess A/S , and Philips Lighting, for whom he had previously developed the CitySwan light fixture. The CitySwan won the prestigious Red Dot award in 2008.

The solution

The key was the Touché solar cell mast, which Schläger had designed and developed over a period of years and consisting exclusively of reusable materials. The mast is made of aluminium covered with silica-based solar panels with an 17% efficiency rating. The cells are protected by an impact-proof polycarbonate screen. Each mast has a battery pack which collects solar energy during the day, making it self-sufficient. A CitySwan light fitting is mounted on each mast and contains 12 highly-effective Lumileds Luxeon Rebel diodes.

The advantages

The system is not dependent on any external electricity supply and can therefore be installed anywhere. The total energy consumption for a CitySwan fitting is just 12W. By comparison, the most energy-efficient standard installation of a similar specification will require around 36W. This means that the solar cell installation yields energy savings of 67% and because the solution is not connected to the mains, CO2 savings are 100%.

Major savings, long service life and good colour rendering.

New energy saving spotlighting for COP 15

Facts

Developer
Kemp & Lauritzen A/S
Location
Bella Center - Copenhagen, Denmark
Lighting type
Spotlighting for stands, office areas, and radio and TV editing
Former light fittings
75W PAR 30 halogen
Light fittings in use
1,000 pcs. Philips MASTER 11W LEDspot PAR 30S MV
Energy savings
Approx. 80 %

Background

With an area of 122,000 m2 and over 900,000 visitors per year, Bella Center is Scandinavia's leading exhibition and congress centre. The high level of activities naturally means very high energy consumption, particularly for lighting. Kemp & Lauritzen A/S is Bella Center's preferred vendor for electrical installations and is one of the largest technical contractors and engineering companies in Denmark within electrical installation, plumbing and ventilation. Kemp & Lauritzen is working closely with the Bella Center to find new, energy-efficient lighting solutions.

The solution

Jan Hoff-Hansen, Divisional Manager for Kemp & Lauritzen at Bella Center, explains: "When Philips informed us of the new MASTER LED stand spot, we were of course immediately interested and ordered 1,000 spotlights. In the run-up to COP 15, we have replaced 1,000 traditional 75W spotlights with the new 11W LEDspot. Initially on the NGO area stands and in offices, but also in the radio and TV studies for the conference."

The advantages

"Apart from energy savings of around 80%, the MASTER LEDspot also features much longer service life than traditional lighting, around 45,000 hours compared to around 2,000," says Hoff-Hansen. "This generation of LED spotlighting also gives really good colour rendering. At the radio and TV locations in particular, the lower heat emission will also be a big benefit."

UrbanScene LED lights efficiently light square.

Better lighting and security with the same energy consumption

Facts

Developer
Municipality of Copenhagen
Location
Blågårds Plads - Copenhagen, Denmark
Lighting type
Street- and floodlighting
Former light fittings
34 pcs. metropole fittings with 42W PLT
Light fittings in use
17 pcs. UrbanScene LED
Result
Better lighting level and quality with the same energy consumption

Background

Municipality of Copenhagen is focusing on the city's outdoor lighting. Three key targets have been defined: CO2 savings through lower energy consumption, crime prevention and improvement of the urban environment by the use of modern design and fittings with crisp white light and colour rendering.
Blågårds Plads in the heart of the Nørrebro neighbourhood is over 100 years old, and is now a hub, where a range of cultures and ethnic groups are represented. When considering ways of renewing the square, the municipality primarily wanted to improve the level of lighting and thus increase security and safety for local residents.

The solution

UrbanScene is a complete range of lighting solutions, encompassing five fittings for street lighting and their associated masts. The range has a modern, integrated design and energy saving functions with highly effective bulbs, electronic connection and excellent optical performance. A total of 17 UrbanScene have been installed at Blågårds Plads around the sunken centre of the square, used for ball games and as an ice rink during the winter.

The advantages

The improved levels of lighting and better light quality give residents, users of the square and passers-by a feeling of heightened security and safety. The long service life of the LED bulbs also reduces maintenance costs.

ParkLED was designed specifically for use with LED.

Illumination with 75% less energy consumption

Facts

Developer
Municipality of Copenhagen
Location
Islands Brygge Station - Copenhagen, Denmark
Lighting type
Street lighting at Metro station and energy consumption optimization
Former light fittings
6 pcs. Helios fittings, with 85W QL
Illumination point height 3.5 metres
Light fittings now use
6 pcs. ParkLED 22W
Illumination point height 3.5 metres
Energy savings
75 %

Background

Islands Brygge Metro station is used by a large number of passengers every day, including students from the nearby University of Copenhagen. Ever since it was opened in 2002, the forecourt has been lit by traditional 85W induction bulbs.
As part of the efforts by the Municipality of Copenhagen to save energy and reduce CO2 emissions, LED light fittings were installed in the autumn of 2009 on the existing masts.

The solution

ParkLED was especially developed for LEDs by Danish architect Mads Odgaard.
The design reduces glare and the directional beams ensure minimum light pollution, whilst excellent levels of colour rendering make the fitting ideal for footpaths and squares.

The advantages

The switch to ParkLED has reduced energy consumption by 75%. The long lifetime of LEDs mean less maintenance. The fixture only has to be cleaned once every 5 years to ensure optimum effect.
Further savings are gained from the ability to reuse the existing masts.