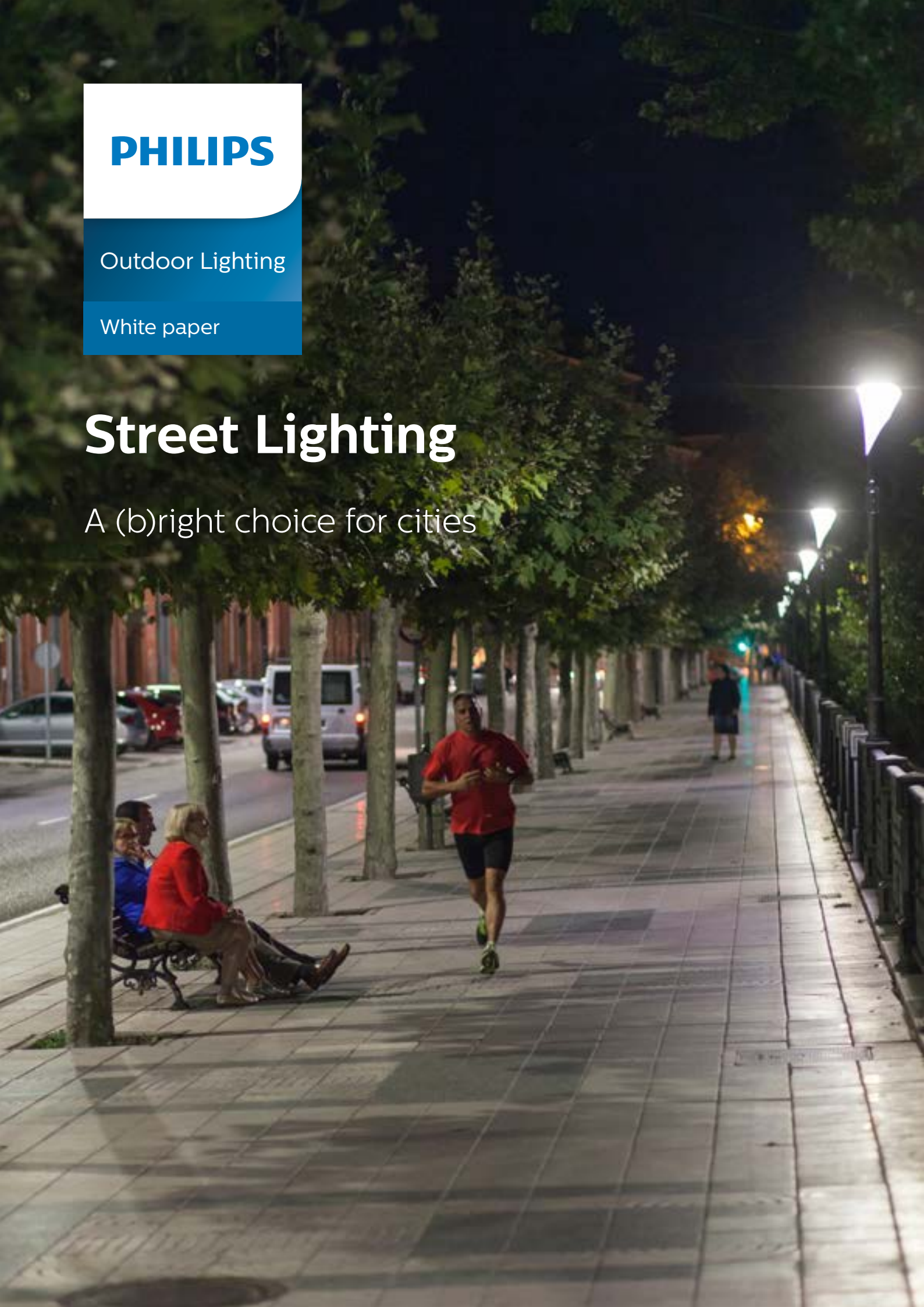


PHILIPS

Outdoor Lighting

White paper

Street Lighting

A (b)right choice for cities

A (b)right choice for cities

Nowadays many of the people who live in cities and smaller towns see it as only natural for urban areas to be lit up, yet few of them are familiar with the history of urban lighting. The first time candle-lit lanterns were used to light up the streets during winter nights was in 1417 in London, with oil and gas lamps later invented to banish darkness from city streets. Real progress was made with the advent of electric lighting, but there have nevertheless still been gradual changes in the role of urban lighting since its introduction. Back in the 1930s, streets were mainly lit in order to make them safer for cars. By the 1980s, however, street lighting was also intended to improve security and help pedestrians feel safer. A modern trend is to focus heavily on the lighting of other urban areas in addition to conventional street lighting.

A better life in well-lit cities and towns

Over 50% of the world's population was living in cities at the start of the 21st century, and this figure is expected to rise to over 75% by 2050. Local authorities in both large cities and smaller towns are therefore becoming increasingly aware of the need to create a pleasant urban atmosphere. One of the main tools that can be used to make cities livable is good night-time lighting of urban areas. Nowadays this involves not just the lighting of main roads, but also the side streets, residential areas, city center, green spaces, like parks and architectural structures.

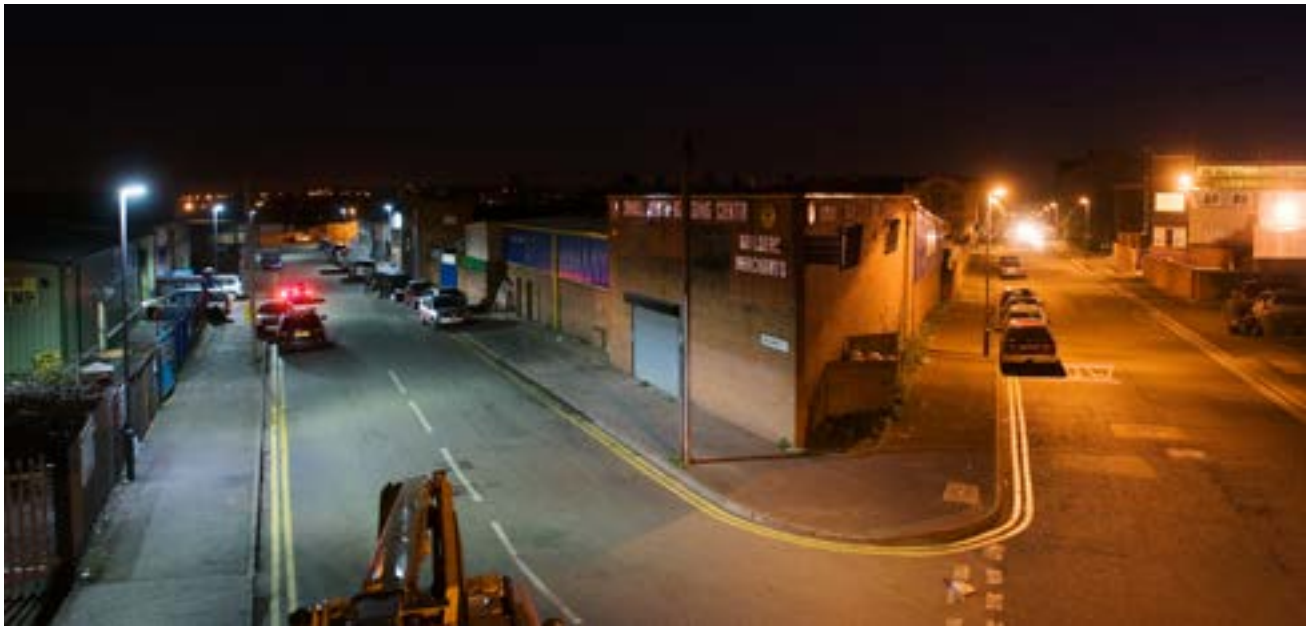
People enjoy living in well-lit cities and towns

People need to feel safe in order to enjoy living anywhere. The right lighting solutions can make it safer for pedestrians and vehicles to use roads, and can also help to prevent crime by reducing the number of car thefts and robberies which occur at night. This then means that less money needs to be spent on emergency services, infrastructure repairs following accidents, compensations and treatment for injured persons and the insurance payment of damages following loss of property.

If people living in a city feel safe, they are also more likely to spend time there in the evening. Urban lighting helps to make cities come alive at night, and encourages people to organize cultural events and go out. Well-lit cities are full of life in the evenings; more people are seen on the streets and boulevards and in parks, as well as in cinemas, shops and restaurants.
Attractive night-time lighting which also showcases significant local architectural structures can rapidly become a city trademark which draws in tourists. Urban and architectural lighting can thus increase the standard of living in urbanized areas and help directly to make people happier and comfortable.

White light: better than yellow

In the last few decades of the 20th century, cities and towns were forced to use high-pressure sodium lamps which emit a characteristic orange-yellow glow to achieve bright street lighting at an economical price. Further savings were often only feasible with drastic methods such as switching some or even all of the city's public lighitng off on a temporary basis. This still happens today as a result of uneconomical lighting systems which consume an unnecessarily large amount of electricity and place an excessive burden on the budgets of local authorities, in particular in cities which still use mercury lamps, which are even older and less energy efficient than their sodium counterparts.
The problems relating to inefficient light sources used for urban lighting purposes have not been ignored by the European Union, and Directive 2005/32/EC I of the European Parliament, which provides for the complete withdrawal from use of mercury lamps by 2015, was adopted in view of the challenges associated with the design of energy-using products. The Directive also provides for gradual restrictions to be imposed at a later date on inefficient sodium and metal halide lamps.



Example of yellow light

Example of white LED light

The latest technologies are however capable of delivering much more efficient methods of producing artificial light, allowing better lighting to be achieved at a lower cost.
One of the fundamental features of life is the white daylight generated by the sun, which is a natural point of reference for all artificial lighting technologies. Despite the fact that the exact nature of sunlight varies depending on the time of day and year, it shapes our ideas about what good lighting should look like. New and efficient technological solutions mean that the yellow light of sodium lamps can be replaced by the white light emitted by technologies developed in recent years on the basis of LEDs (light-emitting diode, a semi-conductor device which generate visible light).
Scientific research has revealed that white lights provide much better visibility than yellow in the lower levels of illumination, which characterize night-time road lighting, even though they emit a lower intensity of light and hence consume less electricity. The improved color rendering of white light also means that the surroundings are brighter and easier to see and look more natural. This makes it easier to recognize human faces and identify details in the vicinity, ensuring that people feel safer and leading to a real reduction in crime.

White LED lighting makes it possible to save money and protect the environment

Lighting solutions based on the use of LED as light source provide high-quality and uniform lighting, and have already been used successfully for several years to light urban areas throughout the world.
LED technologies were already being used in 18% of all lighting installations worldwide in 2012, and this figure is set to increase dramatically to 45% of installations in 2015.
White LED lighting is used not only to illuminate streets, but also the entire urban landscape, since its properties allow the local authorities to save money on energy consumption and maintenance without having to implement drastic and potentially harmful switch-offs.
The basic features of LED lighting include:
• low energy consumption
• long lifetimes
• high quality of light
• ease of operation

Low consumption of electricity – LEDs are currently the most efficient light sources available for urban lighting purposes, delivering savings in electricity consumption of up to 70%, or up to 85% when used with lighting control systems.
The use of LED solutions for urban lighting therefore not only reduces the burden on city budgets, but also protects the environment. If less electricity is consumed then fewer CO_2 is emitted, which is generated during the operation of conventional power stations. This then means less air pollution for us all to breathe in, and a reduction in global warming.

Long lifetimes – Lighting modernisation projects which feature the use of LED technologies are also very cost efficient because of the long lifetimes of LEDs, which promise up to 20 years of almost maintenance-free operation. This is much better than any of the conventional systems which use high-pressure discharge lamps, for example sodium lamps, and their high level of reliability means that LED lighting systems require minimum servicing.

High quality of light – White LED lighting is characterized by excellent color rendering throughout the entire light spectrum. LED lighting is generally available in three different shades of white colors, identified by color temperature, i.e. warm white, neutral white and cool white. At the same time, the optical systems used in LED-based luminaires can guarantee a very even and homogeneous distribution of light and thus a high uniformity of lighting. Street lighting luminaires can provide uniform illumination of both carriageway and the pavements. The high quality of properly installed LED lighting also eliminates glare, which in simple terms means that drivers are not blinded by overly bright lights in their field of vision, and also has the benefit of ensuring that luminaires can be designed in such a way as to ensure that they aim light accurately at the relevant surface instead of wastefully illuminating the sky.

Ease of operation

LEDs are semi-conductor devices. This means that lighting installations featuring LED-based luminaires are easy to control. They can be switched on or off or adjustably dimmed at any time, either individually or as a group, or they can be integrated into a connected lighting system to serve not only illumination, but also as a pathway for providing information and data, allowing to interact with people in the city.

Philips Lighting – a proven and reliable partner

The proper implementation of urban lighting modernisation projects involves more than merely street lighting, and a much more comprehensive approach is required. It is not just the main streets that are lit in modern towns, but also local roads, emblematic central areas, green recreational spaces and residential areas, as well as monuments and significant architectural structures. In order to implement projects on this scale, local authorities need more than a one-off supplier of lighting equipment; they need an experienced and trusted partner which knows the business and has a network of research, design and manufacturing facilities. There is a big risk for each city to place its trust in a supplier picked out of the blue with no proven track record in the market, offering low priced luminaires with at first glance look comparable and feature the same standards for optics and performance. Local authorities need a partner able to guarantee the lowest possible level of risk from the design stage right through to operation and after-sales in order to implement your public lighting modernisation projects properly. Philips Lighting delivers the highest possible standards, working as a partner on your public lighting projects. Philips is already present in the market since the beginning of electrical lighting.

Its many years of experience and position at the cutting edge of the lighting industry mean that Philips can guarantee long-term cooperation, state-of-the-art and top-quality technological solutions, project support, excellent after-sales support and the capacity to develop innovative lighting solutions that really can put you in control of your lighting infrastructure. This is entirely beyond the scope of companies supplying equipment which is made by unknown manufacturers, and which often fails to comply with the standards in force in the European Union.

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