



Signify

# The LED lighting revolution

A win for climate, economy, and society



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**Creating brighter lives  
and a better world**

# Our vision

We lead innovation that connects light and people, delivering light beyond illumination. Our purpose is to unlock the extraordinary potential of light for brighter lives and a better world.

We create brighter lives through:

- Light for greater well-being and safety
- Access to light in off-grid areas
- Creating safe and healthy workplaces for employees

We create a better world by delivering:

- Energy-efficient and connected lighting
- Circular lighting to save material resources
- On our commitment to reducing our environmental footprint



# The challenges

## Our world is changing

- **Population growth** and urbanization are increasing demand for artificial lighting
- **Resource challenges** and the fight against climate change increase the need for energy efficient lighting
- **Rapidly emerging digitization** is increasing the need for further integrations and connected lighting

## **35% increase** in light points from **2006 to 2030**

Due to population growth, urbanization, and the rise of the middle class, the total number of light points throughout the world is projected to grow by **35%** between **2006 and 2030**.

# LED lighting:

## A major energy-saving opportunity

Even though the number of light points is expected to grow substantially by 2030, LEDs can deliver significant savings (compared with baseline 2006 figures):

Region	EUR bn	Carbon Mt	# Power plants*
Global	272	1400	1250
EU (incl. RCA)	85	198	267
NA	48	301	273
Latam	24	34	94
Asia	71	601	403
Middle East & Africa	42	266	212

\*Estimate of mid-size, 2MWh power plants using fossil fuel.



The lighting share of global electricity consumption fell from **19% in 2006** to **13% in 2018**, and is projected to decline to **8% by 2030** following the adoption of state-of-the-art lighting solutions.

A decrease of  
**1400 million**  
tons of carbon  
emissions  
per year

Energy savings of  
**€ 272 billion**  
compared to  
“business as usual”  
per year

Savings of  
**1250**  
power plants’  
output compared  
to “business  
as usual”

# Our global goals

As part of our continuing commitment to the United Nations Sustainable Development Goals (SDGs), we are taking action on four SDGs that link directly to our vision to create brighter lives and a better world.



**SDG 7 Affordable and clean energy** is addressed through our energy efficiency program with UNEP and SE4All, and our energy access work through the Global Off-Grid Lighting Association.



**SDG 11 Sustainable cities and communities** is addressed through our LED lighting programs with city associations, and NGOs such as The Climate Group and the World Green Building Council.



**SDG 12 Responsible consumption and production** is addressed through our carbon neutral, zero waste to landfill, sustainable supply chain, sustainable revenue programs, and circular lighting proposition (a LaaS offer).



**SDG 13 Climate action** is addressed through our thought leadership activities, long-standing cooperation with the UNFCCC and the WEF, and our carbon neutral and sustainable supply chain programs.

# Our sustainability commitments by 2020



80% of revenues  
from sustainable  
products, systems  
and services



More than  
2 billion  
LED lamps  
and luminaires  
delivered



100%  
carbon neutral  
& 100%  
renewable  
electricity



Create safe  
and healthy  
workplaces



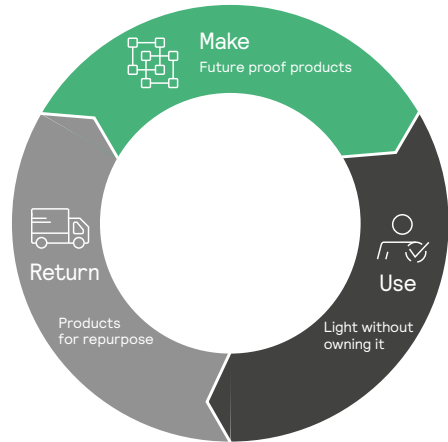
Zero waste  
to landfill in  
our operations



Sustainable  
supply chain

# Circular economy rapidly emerging

For a sustainable world, the transition from a linear to a circular economy is essential. A circular economy aims to decouple economic growth from the use of natural resources by using resources more effectively.



## **What does this mean for the lighting business?**

Use, not ownership, is the key element – you no longer need to purchase products that provide light, but rather only buy the light itself.

Building on this principle, the business model of Light as a Service (LaaS) is rapidly emerging. The core concept of the model is that lighting installations no longer require upfront investments, and the user only pays for the lighting used and doesn't purchase the equipment. This model offers the benefits of increased savings due to the lack of investment, hassle-free operations and maintenance due to the lack of ownership, and financing.

Looking at the current lighting industry in Western Europe, only 10% of discarded luminaires are officially collected and registered. Circular lighting, a concept taking the LaaS model further, can offer a solution to this, and increase the amount of lighting equipment collected, repurposed, and put back into circulation.





# Our achievements

## Global Lighting Challenge

Between 2015 and mid 2017, we delivered one billion LED lamps and luminaires as part of our commitment to the Global Lighting Challenge, the Clean Energy Ministerial campaign to improve energy efficiency around the world.

We are the first company to reach this milestone, which marks the latest progress in the global transition to energy-efficient lighting, a vital measure in slowing climate change.

We are on track to meet our commitment of two billion LED lamps and luminaires ahead of the 2020 target.

When compared to the outdated lighting sources these LEDs replaced, the energy savings achieved are equivalent to the energy generated by 30 medium-sized coal-fired power stations. The CO<sub>2</sub> reductions achieved are equivalent to the annual emissions produced by 12 million cars.



# Signify Foundation

In a world where more than one billion people have no reliable access to power, electric light is a distant dream for many.

The Signify Foundation is committed to ending this imbalance. The mission of the foundation is to enable sustainable access to light in underserved communities. Our projects promote the use of lighting systems based on clean technology and address the entire spectrum of lighting needs in a community.

Working with NGOs, social enterprises and communities around the world, we're bringing electric light to places where it is needed the most. And by sharing our expertise in lighting and accelerating the adoption of energy-efficient lighting, we're helping to protect the environment for everyone.



# Brighter lives for off-grid communities

Light is a fundamental part of our lives. With the flick of a switch, it transforms darkness into places where people can work, learn, and create.

As a founder and active member of organizations such as the global association for the off-grid solar energy industry (GOGLA) and International Solar Alliance (ISA), we are committed to delivering innovations that enable off-grid communities to access safe, renewable lighting after dark. We do this by making our latest solar indoor and outdoor lighting systems accessible to people. With this technology, social and business life no longer has to stop when the sun goes down.



[www.gogla.org](http://www.gogla.org)



# We lit the lives of over 46,000 Rohingya families

Together with BRAC, one of the world's leading non-governmental organizations, we distributed over 46,000 Philips solar lanterns to Rohingya families in Bangladesh.

Previously the camps had been pitch black at night, making basic activities almost impossible. The shelters desperately needed lighting to increase security and support basic needs.

With the new solar lanterns we improved the living conditions in the refugees' makeshift shelters and especially improve the safety and security of women and children at night.





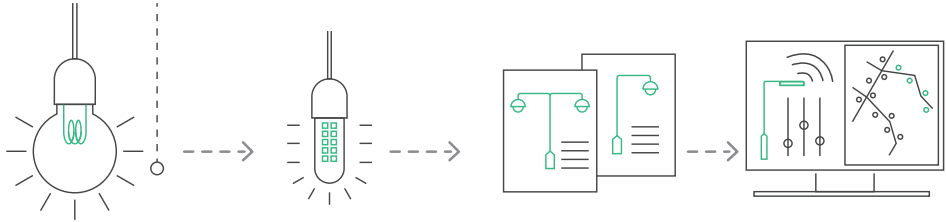
# Delivering value beyond illumination

# Going beyond illumination

We are leading the ongoing development of connected lighting systems and services. By leveraging the Internet of Things, we are transforming buildings, urban places, and homes. We increase energy efficiency and manage working environments in a more environmentally friendly way.

We make cities safer and more responsive. We offer rich lighting experiences that make people feel safe, comfortable, focused, energized, and entertained. That's how we take light beyond illumination, and help improve the way the world works and people live.

# The evolution of the lighting industry



## Conventional lighting

Analog lighting with on and off options

## LED lighting

Greater efficiency and quality of illumination

## Lighting systems and services

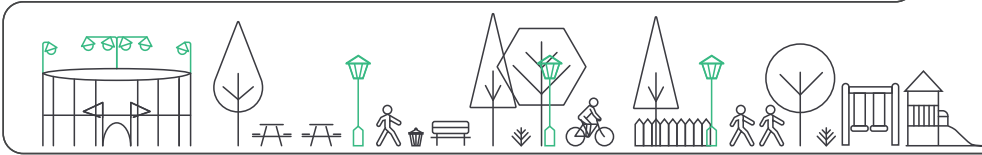
Greater control and performance and the start of lighting-based business models

## The Internet of Things

The era of integrations and connected smart devices that enable data collection and create new data-enabled services

# Connected lighting solutions for every application area

A connected lighting grid is a perfect foundation to make the world a better place to live. In cities, for instance, connected LED lighting can become an integral and future-proof smart city building block. In addition to energy efficiency, cost savings, and reduced carbon emissions, connected LED lighting can:



- Enhance safety
- Create more productive offices and workplaces
- Make public places and cities more enjoyable

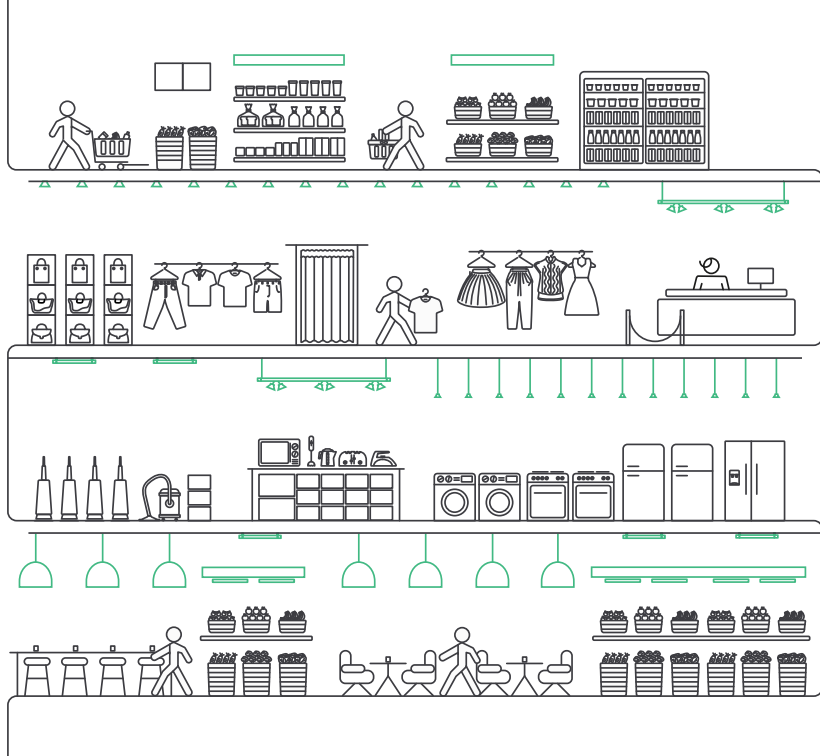
# Can you imagine lighting ....

**Guiding shoppers in retail stores** right to the items they are looking for?

**Optimizing space usage** in offices and reducing real estate costs?

**Facilitating a free flow of spectators** to concession stands in a stadium to increase crowd safety and maximize refreshment sales?

**Tracking and locating** high-value machinery and equipment in hospitals?



# How can connected lighting help cities improve their services?

We are improving the quality of city services through our partnership with the World Council on City Data (WCCD), WCCD is a network of 62 cities around the world committed to improving services and quality of life with open city data and comprehensive standardized urban metrics.



# Improved lighting conditions have proven to deliver significant benefits

## Improved public safety/reduced crime rates

Areas with improved street lighting experienced a **21% reduction in crime** relative to areas with no street lighting improvements.

## Improved traffic/pedestrian safety

A literature review of studies concluded that: "...on urban main roads, **a reduction in accidents involving injuries of approximately 30%** can be expected at night following an improvement in the lighting from very bad to good."

Source: The citywide benefits of smart & connected public lighting assessed through WCCD ISO 37120 DATA, 2017



# Transforming spaces and places with light



# Guadalajara, Spain

**By using LED luminaires connected to Interact City Lighting asset management software, Guadalajara has achieved a 69% increase in energy savings.**

That's an annual reduction of 4,188.81 tons of CO<sub>2</sub>, or the equivalent of 107,405 trees (according to the EPA's greenhouse gas equivalencies calculator).

Remote light management software gives managers a map-based view of the city's lighting assets and workflows so that maintenance crews can be efficiently scheduled to resolve any issues. **The percentage of failure complaints from citizens has decreased to less than 0.1% per year.**

The city now has a cost-efficient solution using the existing lighting infrastructure which, via its open APIs, also future-proofs the city for new IoT innovations.



# The Bay Bridge, United States

Recently named by USA Today as one of the top ten places to immerse yourself in digital art, The Bay Bridge lighting installation, **already seen by over 50 million people and estimated to boost regional economy by \$100 million annually**, has transformed the San Francisco Bay area.

The new system was specifically engineered to withstand harsh weather environments. The permanent **installation also utilizes Interact Landmark Lighting asset management software to remotely control and monitor the cloud-based connected lighting system**, ensuring that this iconic landmark's lighting is always operating at peak performance.





# The Edge, the Netherlands

At The Edge, connected lighting and Interact Office Lighting management software help create a more comfortable, productive, and sustainable office space.

The system uses nearly 6,500 connected LED luminaires to create a digital lighting infrastructure throughout the building's 15 stories.

**Installing Interact Office has resulted in an annual reduction of €100,000 in energy costs and an impressive €3.6 million savings in space utilization.** Almost 1,000 more staff now work in this smart connected space than was originally intended, making The Edge Deloitte's least expensive office globally as well as its most popular – with the firm receiving four times more applications than before.



# aswaaq, United Arab Emirates

As one of Dubai's leading supermarket chains, aswaaq wanted to increase brand loyalty and improve customer service by providing a more personalized and convenient shopping experience for its customers.

**Using Interact Retail Indoor navigation, aswaaq created a state-of-the art shopping experience.** It uses VLC technology embedded in the LED luminaires that enables reliable and hyper-accurate location-based services over shopper smartphones via the store's app.

**Indoor navigation enables** aswaaq to deliver **personalized customer experiences, such as wayfinding**, special offers and recipes, **while collecting valuable anonymous data on shopper behavior.**



# Optus Stadium, Australia

In 2012, the Government of Western Australia set a goal to create a multipurpose facility that delivered a unique experience for fans and the wider Perth community. They needed a venue that could be used 365 days of the year. The government wanted a fully IoT-enabled stadium with cutting edge technologies in order to attract domestic and international events.

**The lighting, which is managed by Interact Sports Lighting management software, has the flexibility to create a multi-purpose arena, which is ready to host different types of events such as football, cricket matches or music concerts.** Music and lighting can be merged together in advance by the lighting operator for seamless implementation, creating visually stunning pre-match light shows. In addition, the LED floodlights meet the requirements for HDTV broadcasting standards for sports lighting.



# Puerto de la Cruz, Spain

The Canary Islands have the clearest skies in Europe and are therefore home to several renowned observatories. The quality of the sky is even protected by Spanish law, which requires municipalities to take measures to mitigate light pollution.

To this end, we installed a system that uses a **dedicated light recipe, applying optics that reduce light spillage and also filter the blue part of the light spectrum, which could interfere with nearby observatories**. The new light points are also wirelessly connected to our Interact City lighting system and management software so that they can be dimmed or turned up remotely. By using these features, municipalities can ensure that light is only used when and where it is required.





# Lighting up the Legacy of the Beast

Packing arenas during its Legacy of the Beast tour, the iconic heavy metal band Iron Maiden opted for lighting that really brought the beast alive. Using our entertainment lighting innovations, lighting designer Robert Coleman could deliver the heavy-duty punch the show required. **The lighting perfectly communicated the drama and tension in the vivid war, mysterious cathedral as well as Hell scenes.** “They’ve been hitting the back wall of the stadiums,” Coleman said. “I have particularly enjoyed the strobe, especially when blasting the audience.”



# Schiphol Airport, the Netherlands

The project involved the installation of 3,700 LED fixtures, and resulted in a **50% reduction in electricity consumption, opex payments with no upfront investment, and fixtures optimized for the circular economy, performance, and recycling.**

In association with architects Kossmann.dejong, we developed dedicated modular lighting for Schiphol that will last 75% longer than conventional fixtures, as the products were designed for:

- Upgradeability
- Ease of maintenance
- Easy serviceability
- Disassembly
- Recycling



# Services that add value

# End-to-end service value to customers



## Plan & design

We do a lighting assessment of the current installation and identify possible savings. Our design team will propose a fully customized plan.



## Build

After the proposed solution is agreed and accepted, we take care of end-to-end project management. We dispose of the old luminaires (if existing), and deliver, install, and commission the new lighting system.

We can support you at each stage or through the complete lifecycle of your project.



### **Operate**

We manage the day-to-day operation of your lighting assets: we check the system operation, monitor alarms, consult on reported faults, and design and upload content (where applicable).



### **Maintain & optimize**

As part of our recurring services, we manage all maintenance and repair work, optimize the installation's performance throughout the life of the contract, and verify the performance outcome as agreed. We can also perform tracking and measurement analytics against both the operational and business-related KPI's (if applicable).

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