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Huge savings despite growing demand for energy

- Three global trends are at play that put constraints on resource challenges
  - Population growth
  - Urbanization
  - Rise of the middle class

- By 2030 these global trends will have led to an estimated 35% increase in number of lightpoints worldwide.
By accelerating renovation of the installed base and leapfrogging to efficient and connected LED lighting solutions for new cities and buildings enormous energy savings can be achieved
From a linear to circular economy

Over the past decades we have optimized a society focused on (paying the) lowest initial cost. This has resulted in a linear society, which extracts, consumes and emits huge amounts of resources (energy, material, food and water). The creation of this linear economy has been supported by using GDP as the ‘perfect’ linear indicator for progress.

To successfully address sustainable development challenges (now captured in the 17 Sustainable Development Goals) we need to move to smarter circular ways and models of managing resources and creating progress and prosperity, we need to become a circular society with quality of life as the key indicator.

In this society, effective use and re-use of resources – starting with energy – will create a competitive economy centered on the health and well-being of everyone.
Global trends

35% increase in lightpoints compared to 2006

Due to population growth, increasing urbanization and the rise of the middle class, the total number of lightpoints throughout the world will have grown by 35% by 2030.
Meeting increased demand for lighting

With the projected 35% growth in lightpoints, the world needs solutions that take into account the well-being of both people and planet. That means:

• The world needs More lighting to cope with increased demand

• The world needs Energy-efficient lighting to reduce the economic and environmental impacts

• The world needs Smart, connected lighting to maximize the benefits
LED lighting provides a viable solution

Four drivers for change

1 Rising energy prices

2 Security of energy supply
Lighting currently consumes 19% of the world’s electricity.

1 value proposition

LED lighting can now be used in all applications. It can also be connected to lighting management systems and adjusted to produce new lighting experiences. This makes it an energy-efficient lighting solution that can help drive global sustainable development.
Despite the enormous growth in lightpoints by 2030, compared to 2006, LED lighting can deliver:

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</table>
A decline of 1400 million tons in carbon emissions

€ 272 billion in energy savings compared to ‘business as usual’

A saving of 1250 power plants compared to ‘business as usual’
Benefits beyond Lighting

As well as energy efficiency, cost savings and reduced carbon emissions, LED lighting provides additional benefits beyond efficiency. With lighting levels that can be adjusted and no compromise in light quality, it can be used to create:

- Safer roads and streets
- More productive offices
- More patient-friendly hospitals
- More liveable cities and attractive public spaces
Barriers to switch

Lack of awareness
- people are simply not sufficiently aware of the many benefits of good quality LED lighting.

- Lighting is of low interest
- People don’t see the electricity costs associated with lighting
- They are unaware of new, energy-efficient lighting technologies
- Often decision makers are not lighting experts

Financial
Although energy-efficient lighting technologies cost a little more initially, they offer attractive levels of payback and save large amounts of both energy and money during their lifetime.
Next steps to acceleration

- **Technology exists**: there’s no need to delay adoption

- **Policy frameworks**: renovation of existing lighting systems combined with green public procurement

- **Financing**: unleash public private financing mechanisms

- **Communicate tangible benefits**: impacting voting and buying behavior
Over the years, the use of conventional light bulbs has been steadily decreasing as people become more and more aware of the disadvantages.

Conventional versus...

In 2006 the annual global sales of incandescent light bulbs was at a stable level of 12 billion pieces per year. The collective efforts to transition towards efficient lighting have already resulted in a halving of the annual market for incandescent light bulbs to 6 billion pieces.
In the years ahead of us we will see the 19th century incandescent light bulb (the first mass electric appliance!) completely disappearing, and being replaced by 21st century efficient connected LED lighting systems and solutions.
Global trends (population growth, urbanization, rise of the middle class) lead to an annual growth in energy demand of 3%, while as a society we only become close to 1.5% more efficient per year. If we double the rate of energy efficiency improvement to 3% per year this has significant economic benefits:
Doubling the rate of energy improvement provides

• €2300 / US$ 2500 billion reduction in annual fuel bill by 2030
• reduction of household energy bills by one third
• More than 6 million jobs (already by 2020)

The benefits of LED lighting are ripe for the taking

You can make significant progress in saving energy, reducing carbon emissions and cutting costs by switching to LED lighting. By connecting LED lighting to smart controls, networks, devices and apps, Philips enables new levels of energy efficiency, amazing lighting experiences and outstanding business outcomes. To fully realize the potential, accelerated renovation of urban infrastructure and buildings is needed. Cities, states and regions can take the lead by partnering with progressive companies. Energy efficiency and connected LED lighting systems and solutions are fruits lying on the ground waiting to be picked up. Philips looks forward to working with you on your lighting projects.
The LED and Digital Revolution

Technology and business model transition

Offering Lighting Products

- Analog - Lamps
- Stand-alone - ‘Dumb’
- Products - Replacement sales

Leading EE lighting Solutions

- Digital - LEDs
- Connected - ‘Smart’
- Systems & Services - Projects

Connected LED lighting integrated in infrastructure Eco-systems
Transition from analog to digital:

- Switch from lighting replacement products to financing and leasing lighting as a service

This will reap not only the direct economic benefits of lighting but also the benefits beyond lighting fully in line with the transition from a linear to a circular society.
Real life Madrid case

Madrid is advancing its city infrastructure by swapping 100% of its street-lighting with Philips LED and other Philips energy-efficient lighting solutions. This street-lighting renovation project is the largest in the world to date. This renewal project delivers a 50% saving in energy.
### LED savings potential per region

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## Outdoor Lighting

### LED savings potential per region

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# Office Lighting

## LED savings potential per region

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## Hospitality Lighting

### LED savings potential per region

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# Health Lighting

## LED savings potential per region

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Potential business enablers; overcoming the investment hurdle

Use new business models
- Utility funding schemes
- Public Private Partnership
- Energy Service Company

Private financing
- Installment payment
- Bank loan
- Financial lease

Fiscal measures
- VAT differentiation
- Import duties
- Tax deduction

Public Funding
- Subsidies
- Economic stimulus measures

Carbon financing
- Clean Development Mechanism
- Joint Implementation
- Carbon credits
- White certificates
Policy measures; ‘supply’ and ‘demand’

Restrict SUPPLY of least efficient products

Phase out old inefficient technologies by setting minimum efficiency and quality requirements
- Incandescent lamps
- Halophosphate TL lamps
- High Pressure Mercury lamps
- EM ballasts for fluorescent lighting

Stimulate DEMAND of most efficient products and systems

National policies and legislation promoting efficient products and systems
- Green Public Procurement
- Lighting System Legislation
- Financing mechanisms
- Energy performance targets for all buildings and neighbourhoods, combined with renovation of existing ones