The Benefits of Energy Efficient Lighting in tackling Climate Change in our Cities and Buildings

- A Triple Win for People, Environment and Economy -

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Energy & Climate Change

Four drivers for action
- Rising energy prices
- Climate change / Kyoto
- Security of Supply
- Economic Growth

Our value proposition
Energy Efficient Lighting Solutions

Oil, yearly av. price (US$)*

* Source: OPEC Reference Basket (ORB), www.opec.org
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How does this relate to EE Lighting?

Current lighting market situation
- Up to 75% of all lighting currently installed is old less energy efficient
- New energy efficient solutions exist for all segments
- Tomorrow we will have even more solutions (LEDs)

But:
- The current market renovation rates are too slow! (e.g. Street lighting 3%, Office Lighting 7% etc)

Huge potential for energy saving

<table>
<thead>
<tr>
<th>Area of lighting</th>
<th>Energy saving</th>
<th>CO₂ &amp; $ savings per light-point per year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Road lighting</td>
<td>57%</td>
<td>152 kg CO₂ $ 33</td>
</tr>
<tr>
<td>Shop Lighting</td>
<td>80%</td>
<td>140 kg CO₂ $ 36</td>
</tr>
<tr>
<td>Office &amp; Industrial Lighting</td>
<td>81%</td>
<td>93 kg CO₂ $ 25</td>
</tr>
<tr>
<td>Home Lighting</td>
<td>80%</td>
<td>41 kg CO₂ $ 10</td>
</tr>
<tr>
<td>LEDs</td>
<td>80%</td>
<td>41 kg CO₂ $ 10</td>
</tr>
</tbody>
</table>

Potential savings 40%

<table>
<thead>
<tr>
<th></th>
<th>N.A.</th>
<th>Global</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity cost/yr (Bio €)</td>
<td>38</td>
<td>120</td>
</tr>
<tr>
<td>CO₂ emissions/yr (Mio tons)</td>
<td>203</td>
<td>630</td>
</tr>
<tr>
<td>Barrels of oil eq/year (Mio)</td>
<td>575</td>
<td>1800</td>
</tr>
<tr>
<td>Power plants (at 2TWh/yr)</td>
<td>192</td>
<td>600</td>
</tr>
</tbody>
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Energy efficient lighting: a triple win

- **End-users**: lower costs, better quality light
- **Environment**: lower energy usage, lower emissions
- **Economy**: lower costs, greater competitiveness, green jobs
Overcoming Barriers

Current rate of switch over too slow

Acceleration of renovation

1. Awareness Campaigns (public / private)
2. Policy Measures / deployment
3. Partnerships (public / private / NGO’s / utilities)

Live Earth 7/7/07 – Philips Head Sponsor
Legislation global phase-out incandescent lamps

Residential buildings

- [Approved CAN] 2012-2014
- [Approved California & Nevada] 2011-2013
- [Approved USA] 2012-2014
- [Approved CH] 2009-2011
- [Approved EU27] 2009-2012
- [Announced JP] 2012
- [Announced TW] 2008-2012
- [Announced CA] 2011-2013
- [Announced Srl] 2008-2010
- [Announced Br] 2013
- [Announced AUS] 2008-2010
- [Announced NZ] 2009-2011
- [Approved CO] 2011
- [Announced CU] 2005
- [Announced Phi] 2010-2012
- [Announced KO] 2013
- [Announced Sri L] 2008-2010

Under discussion in RSA, Egypt and many other countries in APR and LATAM.

Cities and buildings

The opportunity

- Cities are responsible for 75% of global total energy consumption
- Public and commercial buildings represent 60% of lighting electricity consumption
- Street lighting 15% of lighting electricity consumption
The power of a systems approach

60-70% savings feasible on lighting consumption in offices, schools, hospitals, ....

Energy efficient lighting in new buildings is not enough

- 80% of lighting in buildings is old technology
- Only 1% uses lighting controls: presence detection, daylight controls

99% of opportunities are in existing buildings
Philips supports renovation

Assessment tools & methodologies
- Energy assessment by Philips staff
- Certified ESCO audit

Products & system solutions
- Lighting design
- Product portfolio
- Installation; maintenance

Financial packages
- Financing
- Utility rebate assessment
- Tax documentation
- Cost segregation

Real revolution in lighting
LED brings 50% energy savings or more
Marriott Custom House Tower - Boston, USA

Requirements for lighting:
• Restore night time image of landmark building
• Maximize energy efficiency while minimizing maintenance

Solution:
• 125 LED luminaires Philips Colorkinetics eW Blast Powercore and eW Graze Powercore
• Metal halide fixtures from Philips Lightolier

Energy savings of 67%

Bullring centre, Birmingham, UK

Lighting requirements:
• Promote the centre’s public image
• Create an entertaining shopping experience

Solution:
• eW® Cover Powercore
• RGBi Color Cove QL
• LED City Wing

85% reduction in energy consumption
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**Restaurant Flinstering - Breda, The Netherlands**

**Requirements for lighting:**
- Create an unforgettable dining experience
- Provide restaurant owners with ingenious energy and cost-saving lighting installation

**Solution:**
- Philips LEDline2, SpotLEDs, eW Powercore downlights and cove lighting

*Energy savings of 70%*

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**British Gas Office - Mumbai, India**

**LEED Platinum Certified Building**

**Requirements for office lighting:**
- Minimize environmental impact
- Create a clean, healthy interior space
- Maximize energy efficiency

**Solution:**
- TL-5 luminaires with Omnisense lighting controls
- Downlights with MasterColour lamps
- Dynamic LED lighting

*Max. 9 W/m² used for lighting in office spaces*
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Rundbau, Gerling Konzern - Cologne, Germany
Renovation of 40 year old landmark building

Requirements for office lighting:
• Enhance the characteristic round architecture
• Offer comfort to employees
• Maximize energy efficiency

Solution:
• TL-5 luminaires (Arano) with Omnisense
• Presence detection
• Daylight regulation

Energy savings of up to 70%

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Sainsbury’s Supermarkets - United Kingdom
Freezer lighting in 350 UK stores

Requirements for lighting:
• Reduce energy costs
• Good quality lighting positively influencing shoppers’ buying decisions
• Uniform lighting in line with brand values and company image

Solution:
• Affinium LED Freezer Modules

Energy savings 75%
( >1 ton CO$_2$/year / freezer)
Requirements for lighting:
- Improve users’ well-being
- Innovative design
- Reduce operating costs

Solution:
- 422 recessed LED luminaires
- Spot LED 1x K2
- Spot LED 3x K2

World’s 1st building lit entirely by LED

Cities – Street-lighting
*Besterdring – Tilburg*

- MASTERCosmoWhite 60W
- Koffer² luminaire
- Lumistep dimming; world first!
- 40% energy saving
- Better light quality
  (safety; comfort; traffic flow)
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Cities – Street-lighting
Hofvijver – The Hague

- Innovative LED lighting
- 90% energy saving!
- More attractive; dynamic colours

De Philips DynaDimmer gaat de gemeente Groningen een besparing opleveren van 1 miljoen kWh stroom per jaar. Dat is een geweldige prestatie, waar we bijzonder trots op zijn.”
Henry van der Wal, Beleidsmedewerker Gemeente Groningen

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Cities – Street-lighting
DynaDimmer – Groningen

- Energy Saving streetlighting
- Dynamic dimming during the night
- 1 Mio kWh energy saving
Cities – Street-lighting
Ministerneighbourhood – Eindhoven

- CitySpirit LED;
  Energy saving 70%
- First residential area with LED streetlighting in the Netherlands

“De nieuwste LED-verlichting in de Ministerbuurt onderstreept de ambitie van lichtstad Eindhoven om als laboratorium te fungeren en daarmee duurzame innovatie te versnellen.”
Rik van Stiphout, programma manager licht Gemeente Eindhoven

Philips makes changing to energy efficient lighting simple
Let’s get started

- Lighting can play a big role in energy efficiency
- We invite everyone to do more: we have the technologies, people and products
- Legislation is in place
- What we are waiting for?

The time to act is now