

PHILIPS

Lighting: Energy saving opportunities

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CEO Business Group Lamps
Lighting and Innovation analysts' Day
September 28, 2007

Agenda

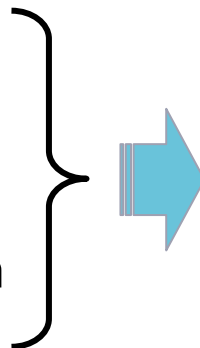


- The world wide Energy & Climate saving opportunity
- Business opportunities:
 - Outdoor: Street lighting
 - Indoor buildings: Offices - industry - education, Hospitality
 - Home
- Realizing the opportunity
- Conclusions

Energy & Climate Challenges

Different regional accents

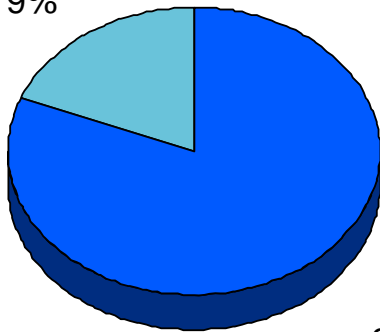
- Rising energy prices
- Climate change / Kyoto
- Energy shortage
 - Risk of black-outs
 - Limiting economic growth



Energy Efficient Lighting

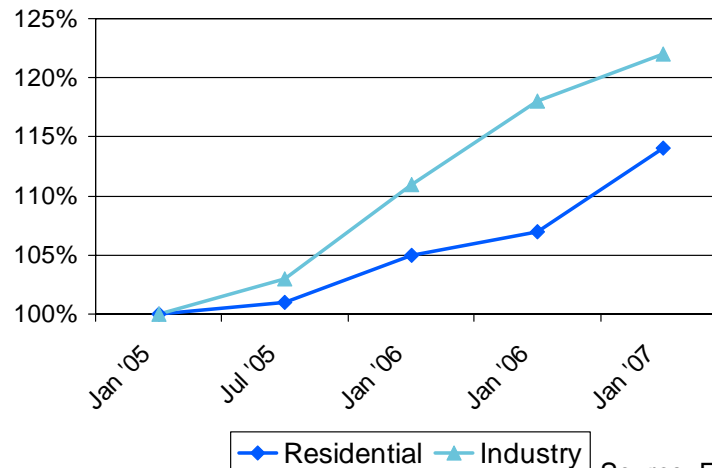


Lighting
19%



other
electricity use
81%

Average European Electricity prices (index)



Source: Eurostat




Energy saving opportunity general lighting

- New innovative lighting solutions could realistically save **up to 40%** energy on all today's installed lighting

Global savings of:
















EUR 106 billion in energy costs per year

This equates to:

-  555 million tonnes of CO₂ per year
-  1.5 billion barrels of oil per year
-  Annual output of 530 medium sized power stations @ 2TWh/yr



For each market segment an energy efficient lighting solution exist already today

Area of lighting	Energy saving	CO ₂ savings per lamp per year
Road lighting	HPL  57%   CosmoPolis	132 kg CO ₂
Shop Lighting	Halo  80%   CDM	140 kg CO ₂
Office & Industrial Lighting	TL8  61%   TL5	93 kg CO ₂
Home Lighting	GLS  80%   CFLi	41 kg CO ₂
LEDs	GLS  80%   LED	41 kg CO ₂

*HPL=High Pressure mercury, CDM=Ceramic Discharge GLS = incandescent bulb, CFLi= Compact fluorescent

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We focus on Outdoor, Indoor and Home lighting

Potential Energy Savings through innovative lighting solutions

Segment	% of total CO ₂ emission	Main Product	Potential savings in segment *
Outdoor: Street lighting	18%	HID / Metal Halide CosmoPolis	35%
Indoor: Buildings	45%	New TL	35%
Homes	25%	CFLi / Eco-Hal / LED	70%
Lighting total			40%

• Savings takes % of segment that uses old technology into account; including use of lighting controls

Outdoor: street lighting



- 56 Mio street-lighting light points in Europe
- 18 Mio still using 1930`s technology
 - High-Pressure Mercury Lamps (HPL)
- Alternatives available:
 - High Pressure Sodium
 - Ceramic Metal Halide (Cosmopolis)



50 lm/W



100 lm/W

Outdoor: street lighting

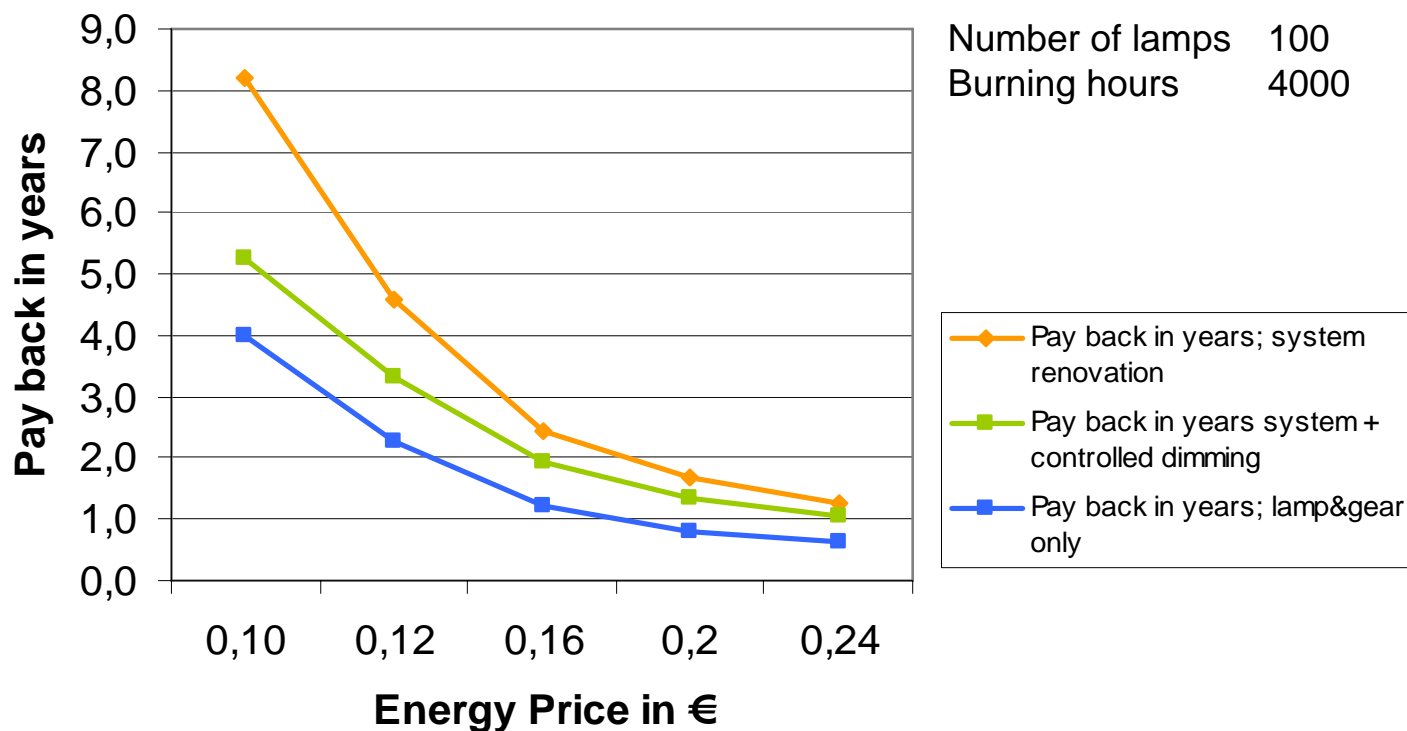
Cosmopolis; an award winning solution

- **Lighting Design Award 2006** – United Kingdom (organised by Lighting Equipment News magazine and the lighting federations ILE and LIF)
- **European Environmental Press award** – Netherlands for best environmental technology innovation
- **Energetab 2006 award** – Poland for best technological innovation on the Bielsko Fair



Outdoor: street lighting - Pay Back improvement

HPL 125W vs Cosmo White 60W



Acceleration of renewal rate at shorter pay back periods

Pay-back times are becoming more attractive with increasing energy prices

Outdoor: street lighting - a global success

- **CosmoPolis** globalisation projects today in Anyang City, Seoul, Shang Hai, Singapore, Jakarta, Perth, Melbourne, Panama City, Kiev and Recife
- **CosmoPolis** European sales spread over 35 OEMs design-in
over 75 luminaire families available
over 50 european cities applied CosmoPolis
over 50,000 systems currently installed



Cities applying CosmoPolis

UK

Leeds
South Tyneside
North Walsham
Portsmouth
Croydon
Redbridge
Derby
Milton Keynes
Godalming
Suffolk
Norfolk
Redcar
London Underground
Blackpool

Spain

Somosaguas
Madrid
Torreledones
Ponferrada
Pozuelo
Bilbao

Germany

Hamburg
Vechta
Leipzig
Bispingen
Köln
Böblingen / Sindelfingen

Netherlands

Groningen
Assen
Meppel
Elspeet
Coevorden

Belgium

Antwerpen
Brussels
Turnhout
Liege
Hasselt

Portugal

O'Porto

Poland

Poznan

Austria

Vienna

Denmark

Holbaek

Italy

Milano
Florence
Venice

France

Villeneuve d'Asque
La Baule
Montoir de Bretange
Aurillac
Vichy
Dinan
St. Gereon
Rixheim
Petersbach

Korea

An-Yang City
Seoul

Panama

Panama City

Singapore

Singapore City

Indonesia

Jakarta

Brasil

Recife

China

Shanghai

Ukrain

Kiev



...and many more

Outdoor: street lighting - Qipu Road, Shanghai

CosmoPolis systems in China.



The location is a clothes market, pedestrians are the main users of the road.

Outdoor: street lighting – Caoxibei Road, Shanghai

CosmoPolis systems in China



Located in Xujiahui, one of the commercial centers in Shanghai.

Outdoor: street lighting

Energy efficient street lighting systems in Malaysia

Kuala Lumpur, Malaysia



Outdoor: street lighting

Saves energy by dimming when there is less traffic

Kuala Lumpur, Malaysia



Indoor building lighting

Offices, Industry, Education

Old Technology



- Old fluorescent lamps
- Passive Analogue Electro magnetic drivers

New technology



- High efficiency TL5 fluorescent lamps
- Active electronic drivers
- Lighting control systems

Europe: 75% of offices use old technology;
only 1% using lighting controls

Indoor and outdoor lighting:

Lighting controls contribute to Energy Savings

Energy savings with lighting controls can be achieved by **Switching off** or **regulating artificial light** depending on:

- Presence detection
 - Amount of daylight available
 - Scheduling (day/night settings)
 - Traffic and weather conditions
 - Lamp aging
-
- Philips has solutions in
 - **Indoor:** Lightmaster Modular system
 - **Outdoor:** Starsense system

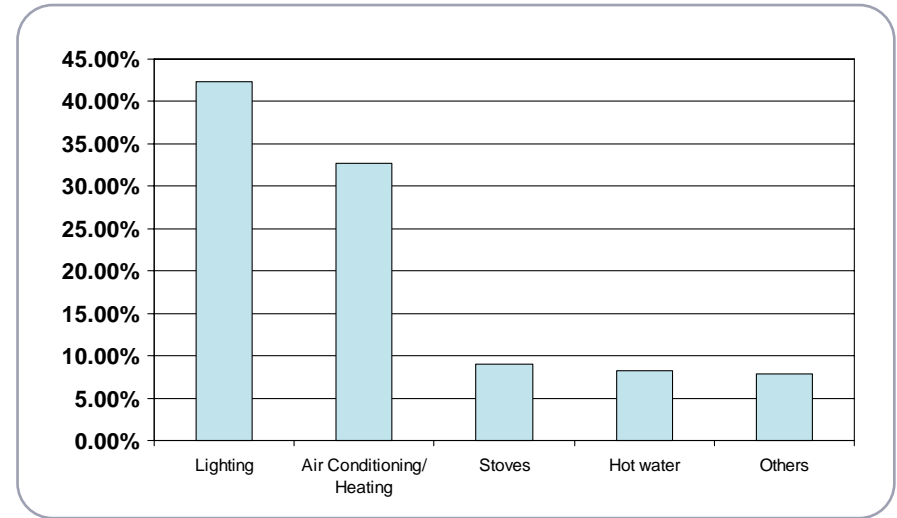
 - Can generate 30% to 70% energy savings depending on circumstances

Indoor building lighting: Hospitality

Lighting up to 40% of total energy costs

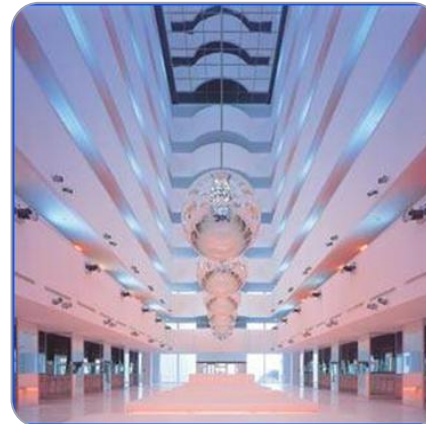
- Lighting is between 23% and 40% of the total energy costs

– Source: ICAEN: Spanish Government



- Energy Saving, Maintenance and Ambiance are most important buying attributes

– Source: Research Germany



Indoor building lighting: Hospitality

Energy efficient solution: Spot LED 3K2



Energy Efficiency



Up to 66% more efficient *
€ 14 versus € 42,- per year



Lifetime reliability

16x longer life

** Reference: halogen
Philips Zadora 35W MV (GU10)
Energy @ €0.15/Kwh, 8000 hrs/year*



Home lighting: Energy saving opportunities

100W incandescent light bulb



Electricity costs per year:
Up to € 15
Average lifetime: 1 year

100W light bulb 1000 hours per year €0.15 p/kwh

20W Energy saving CFL light bulb



Electricity costs per year:
€ 3
Average lifetime: 6 year

Up to 12 euro saving per year or
€72,-during 6 years

Home lighting: clear energy saving options

Philips address this market via 3 steps

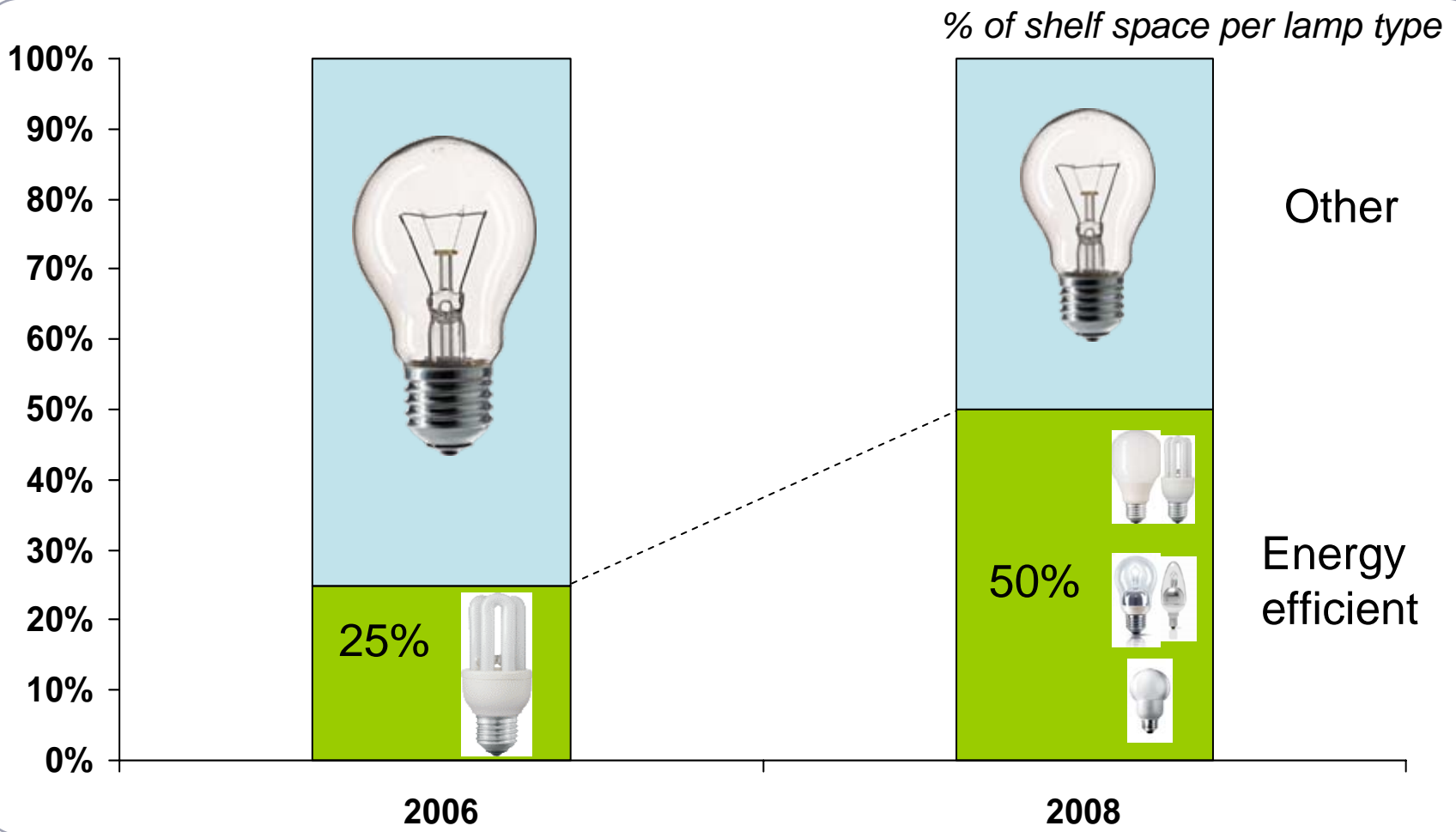


1. **Compact Fluorescent Lamps**
 - 80% Energy Savings
 - Major improvements last few years (size; light quality; forms, cost, dim ability)
2. **Eco-Classic: Energy Saving Halogen**
 - Up to 50% Energy Savings; brilliant, high quality light
 - New range in launch phase
3. **Solid State Lighting (LED`s)**
 - Currently for decorative replacements and orientation light
 - Today limited but fast improving light output



Home lighting: Innovation of product portfolio

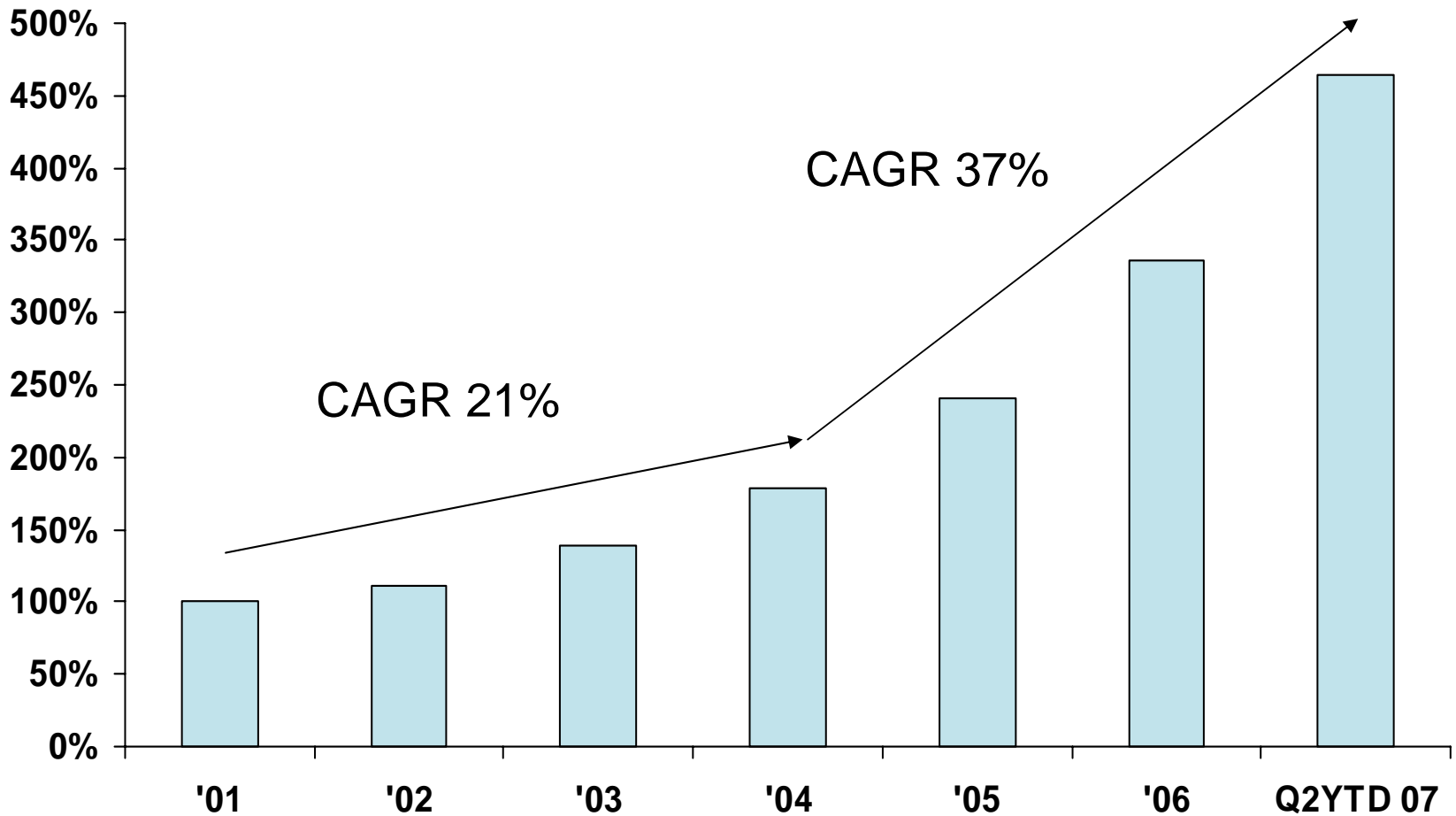
shifts future retail shelves towards energy saving solutions



Home lighting:

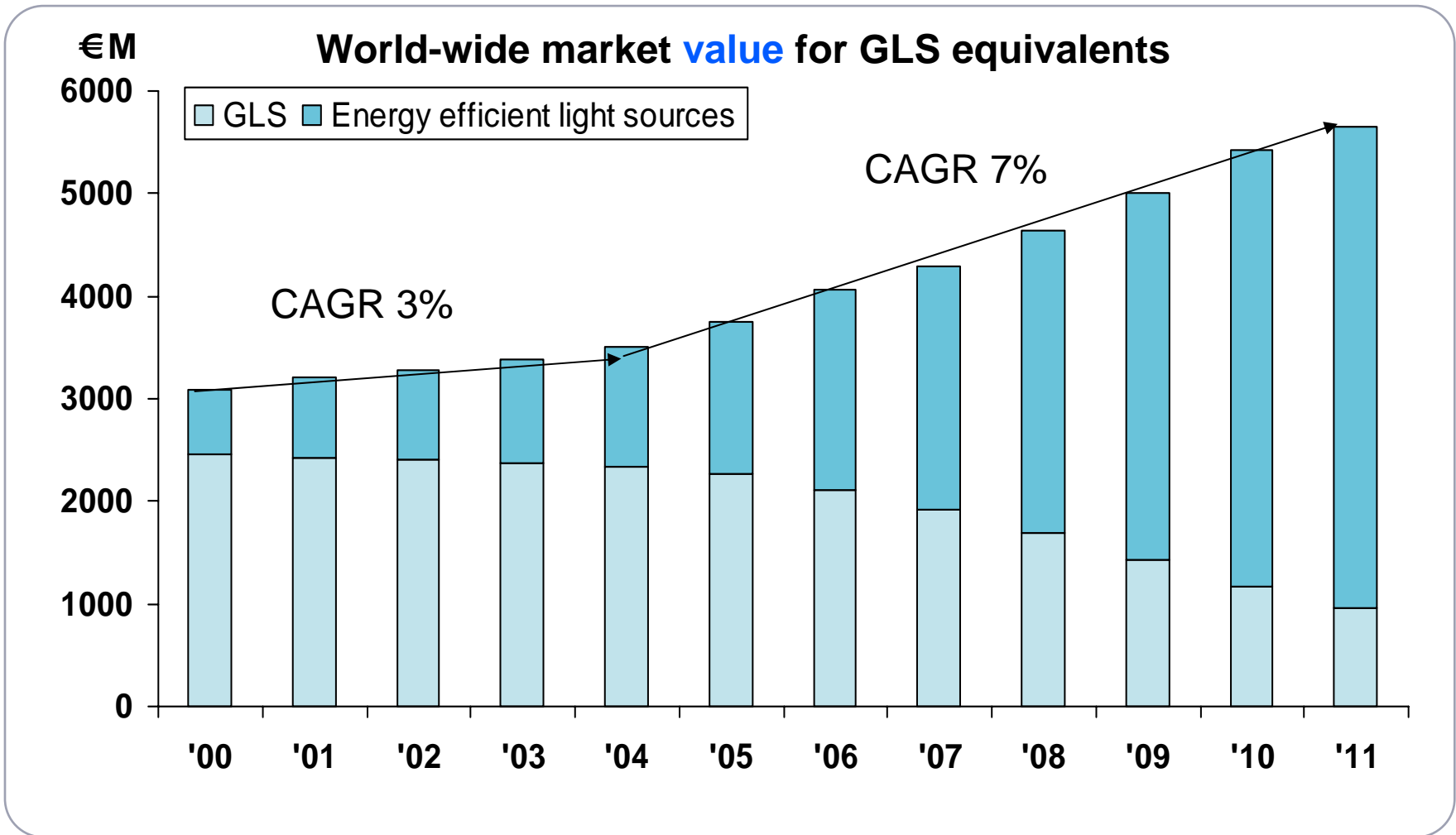
Philips sales of energy savers accelerates

Philips Compact Fluorescent sales in pieces (index)



Market value growth by phasing out GLS

value captured by Compact fluorescent, Eco-classic and SSL solutions



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We take initiatives to increase switch-over rate
e.g. street lighting: changeover rate 3% per year, for office lighting 7%.

Taking away the hurdles to accelerate
switch-over via:

- Awareness Campaigns (public / private)
- New legislation (e.g energy-certification for buildings)
- Partnerships (public / private / NGO`s / utilities)



Awareness campaigns:

Political, Corporate & Public Awareness

- Energy Efficiency & Lighting
- “Everybody” is talking about it and wants action!



Awareness campaigns:

LiveEarth Concerts

Concerts in 8 countries with 150 artists

- New York
- Rio de Janeiro
- London
- Hamburg
- Johannesburg
- Tokyo
- Shanghai
- Sydney

Audience of 2 billion people

Over 600.000 people make a pledge to replace 3.3 million light bulbs on Internet site



Awareness campaigns:

Mr. Al Gore recognizes leading role of Philips



New legislation:

Climate Change is now at the top of political agenda

BRUSSELS EUROPEAN COUNCIL

8/9 MARCH 2007

PRESIDENCY CONCLUSIONS

The European Council:
invites the Commission to rapidly
submit proposals to enable **increased
energy efficiency requirements** on
street and **office** lighting to be
adopted by 2008 and on incandescent
lamps and other forms of lighting in
private households by 2009;



Partnerships will change the business models

- Utility Funded Schemes (Public Energy Suppliers)
- Exploring public & private funding for street lighting
 - PFI: Private Finance investment
 - PPP: Public Private partnership
- Carbon Trading methodology

Partnerships: PPP contract with VINCI

Example: City of Rouen

- 120 000 inhabitants (Area: 450 000 inh.);
Normandy Regional Urban Pole
- VINCI's PPP contract amount: 100 M€, a large 18-years Design, Build, Finance, Operate & Maintain contract in the area of:
 - Public lighting (15 000 public lighting points)
 - Wireless local ip in the old center
 - Traffic management equipments

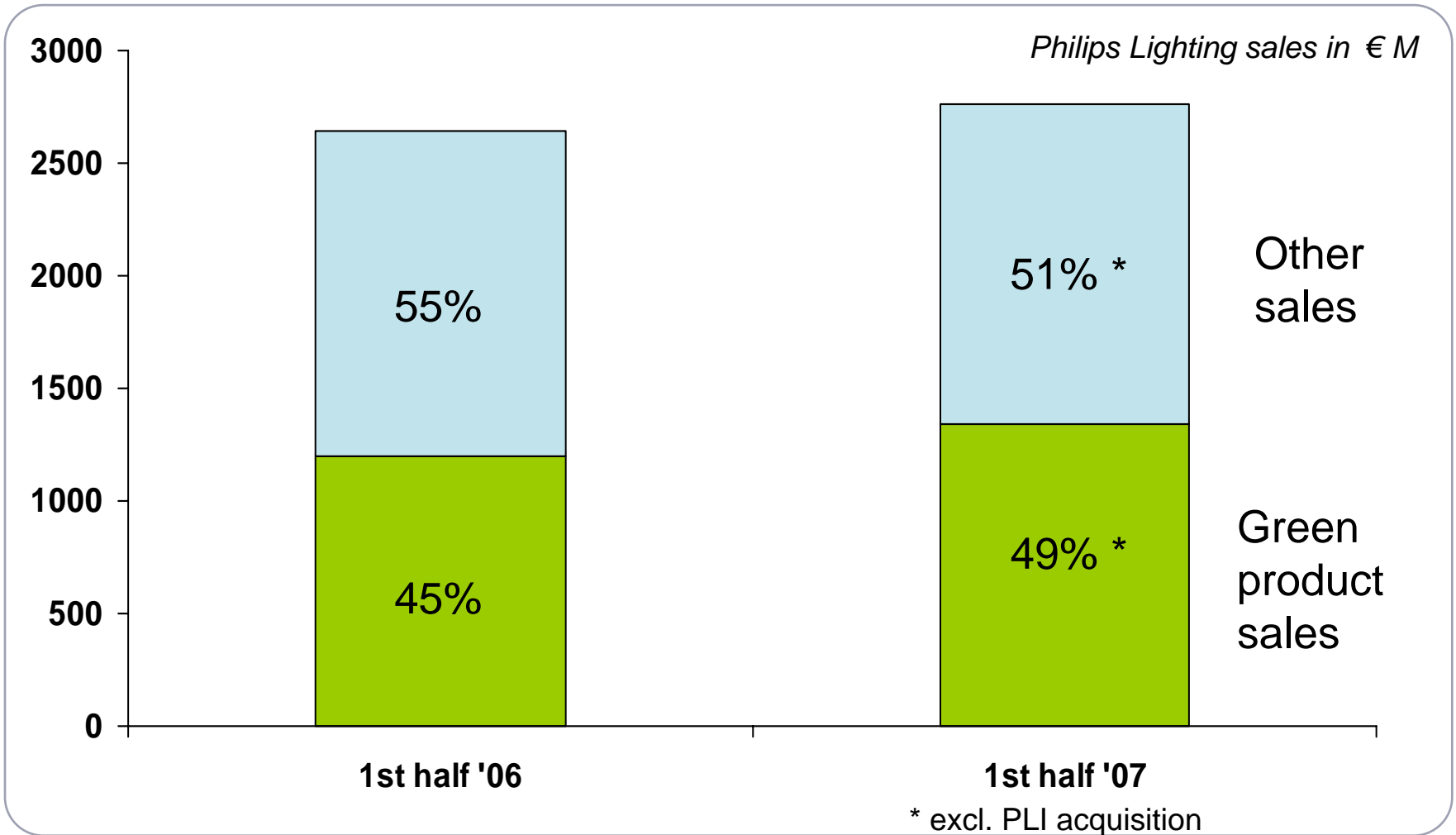


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Innovative energy efficient (Green) products grow two times faster than total Philips Lighting



Conclusions

- Energy efficient lighting solutions are available and drive market growth
- New lighting innovations provides clear benefits for
 - Consumers & Tax payers : save costs & better light quality
 - Environment: lower energy consumptions & CO₂ emissions
 - Business & Countries: increased competitiveness & new business models
- Legislation plays a crucial role in realizing energy savings potential
- Philips Lighting provides complete solutions

**The Clear Leader;
Setting the pace in the lighting industry**

PHILIPS

sense and simplicity