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THE VOICE OF THE LIGHTING INDUSTRY

Improving lighting installations: arguments for going beyond requirements at the product level

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eceee workshop

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Light is Life

Visual function
Identifying, working without mistakes, safety,

orientation

Emotional feelings
Pleasant environment, motivation, mood

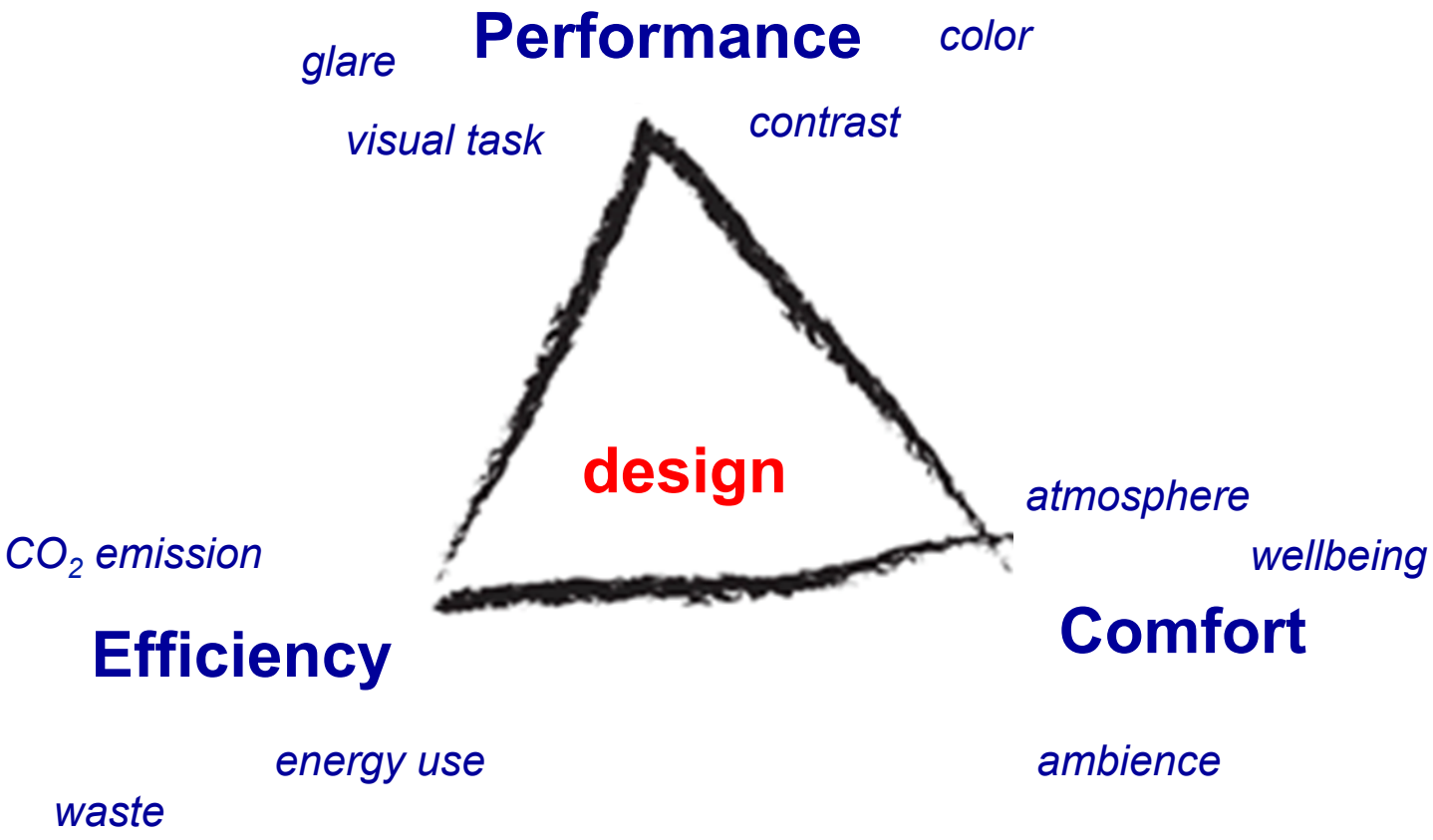
Biological functions
Body clock, sense of wellbeing, health







The Lighting Triangle



The Challenge

- **19% of electricity is used for lighting worldwide**



- **Yearly energy consumption for lighting**
  - EU 27 final electricity consumption: ~ 2750 TWh (2005)
  - Non-residential buildings & street lighting (1.6 billion lighting points (luminaires): ~ 200 TWh (2005)

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The Approach …

Cut energy consumption by 50%

STEP 1: by employing modern energy efficient lighting **PRODUCTS**

- Existing EU EcoDesign Regulation for lighting products
- Reg. 244/2009, 245/2009, 1194/2012

STEP 2: in well designed, installed & operated lighting **SYSTEMS**

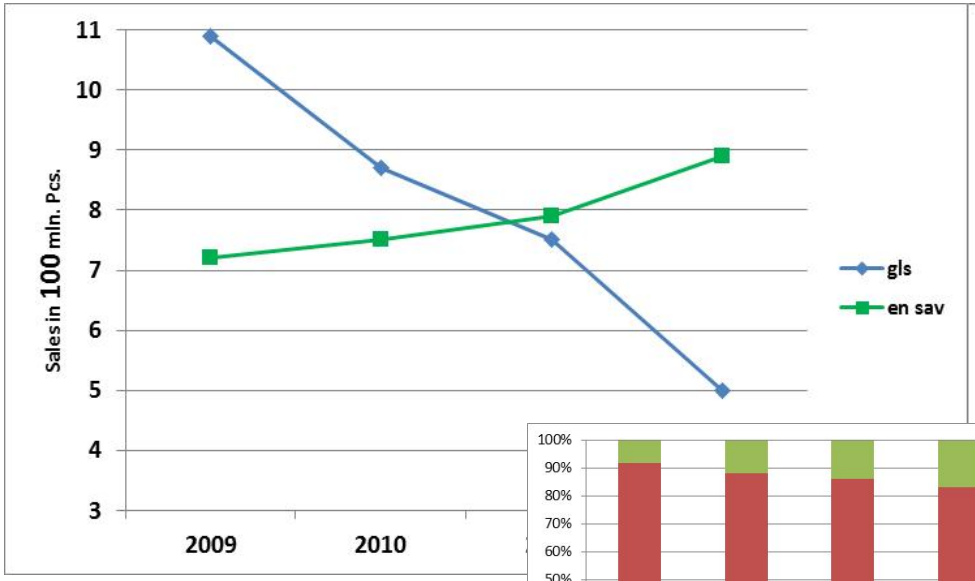
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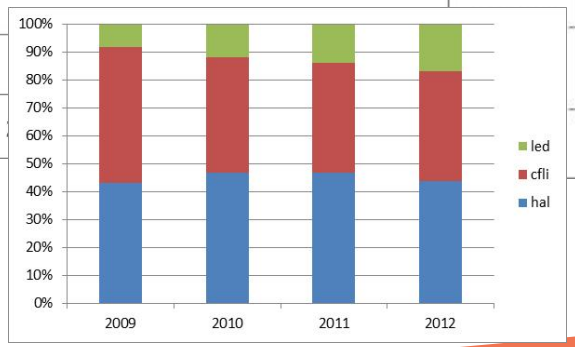
Energy Efficient Products

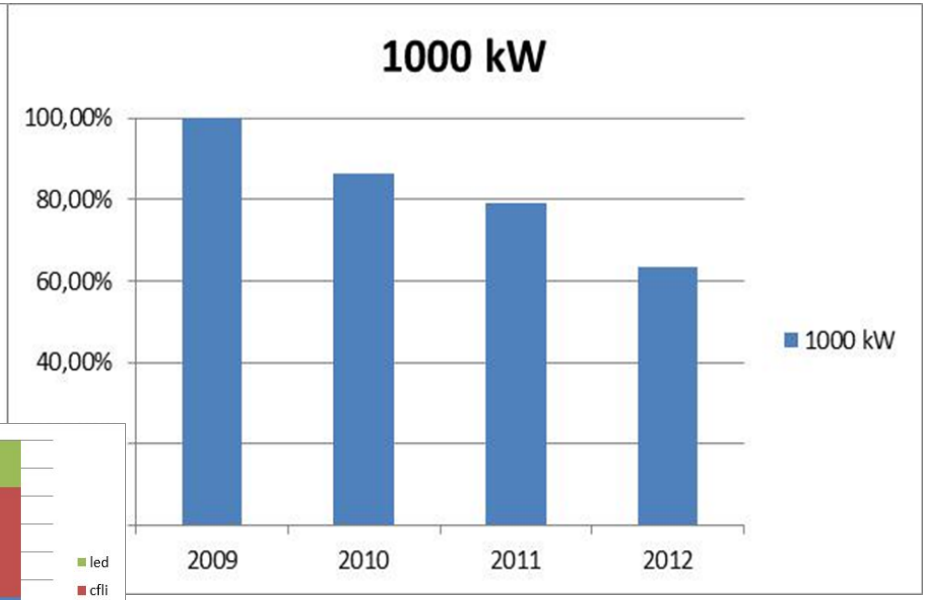
- Addressing household and tertiary lamps & ballasts as a product at time of design
- Minimum requirements on lamps, ballasts resulting in the phase-out of:
  - halophosphate and other magnetic ballast fluorescent lamps
  - high-pressure mercury vapour lamps
  - magnetic ballasts
  - Incandescent lamps
- Energy labelling of lamps & ballasts based on electrical efficiency
- Yearly saving potential compared to Business as Usual: 38 TWh in 2030-2050 => 15-20%

Impact from existing legislation

Total energy consumption by (consumer) lighting reduced > 30% from 2009 to 2012! (On basis of lamps sold)







Systems, the logical next step



- the selection of the right criteria for the lighting task
- the design of the right lighting to meet lighting and energy saving criteria
- the verification of the lighting design
- the installation of the lighting system according to the lighting design
- the commissioning, sign-off and hand over to the user of the lighting installation
- the maintenance, service (schedule defined the design) and operation of the installation by the user

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The Situation today

	Saving potential	Penetration indoor
Permanent (on-off)	0 %	**97 %**
Daylight linking	20-40 %	**< 8 %**
Presence detection	15-30 %	**< 8 %**
Time management	5-15 %	**< 4 %**
Constant illuminance level	10-25 %	**< 3 %**

'Lighting controls seems to be in the same condition as electronic ballasts one decade ago.'

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The Indoor Argument



EU-27 non-residential buildings:

- 90% of the buildings were not desigend according to current lighting standards
- 85% of existing buildings stock do not use intelligent lighting
- 75% of existing installations older than 25 years
- Refurbishment rate is ~ 7% / year
- Intelligent systems improve the quality of light
- Saving potential: 70-75 TWh / year

Business case

- Lighting controls is available technology
- Typical investment € 3 to € 15/m2
- Typical savings € 1.5 to € 3.0/m2
- Typical payback 2 to 5 years



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The Outdoor Argument

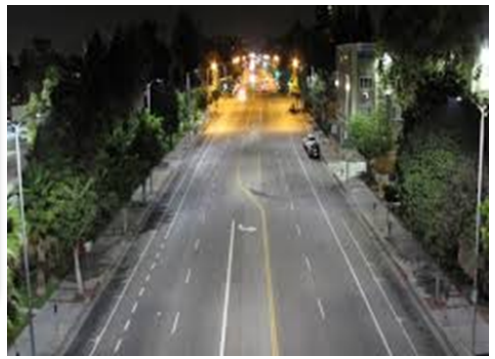
EU-27 street lighting:

- 33% of technology older than 40 years
- Refurbishment rate is ~3% / year
- 98% of existing street lighting has no any control, but switch on/off
- Intelligent lighting control can save up to 40% of electrical consumption
- Intelligent lighting control can improve lighting quality due to provide right light and the instant report of failures
- Intelligent lighting control can reduce obtrusive light (light pollution)
- Saving potential is 10 to 15 TWh/year



Business case:

- Lighting controls for street lighting is available technology
- Typical additional investment is 170 EUR/lighting point (compared to a 'new stand-alone' lighting point)
- Typical saving is 24 EUR/lighting point/year
- Typical pay-back period is 7 years



The Enhanced Business Case

Any business case for intelligent lighting should include analysis of societal benefits

- Improved security for citizens
- Cultural or aesthetic enhancements
- Improvements in workplace – learning – healthcare environments
- Changed citizen perceptions to their living environment
- Attracting more tourists for the city and visitors for local commerce

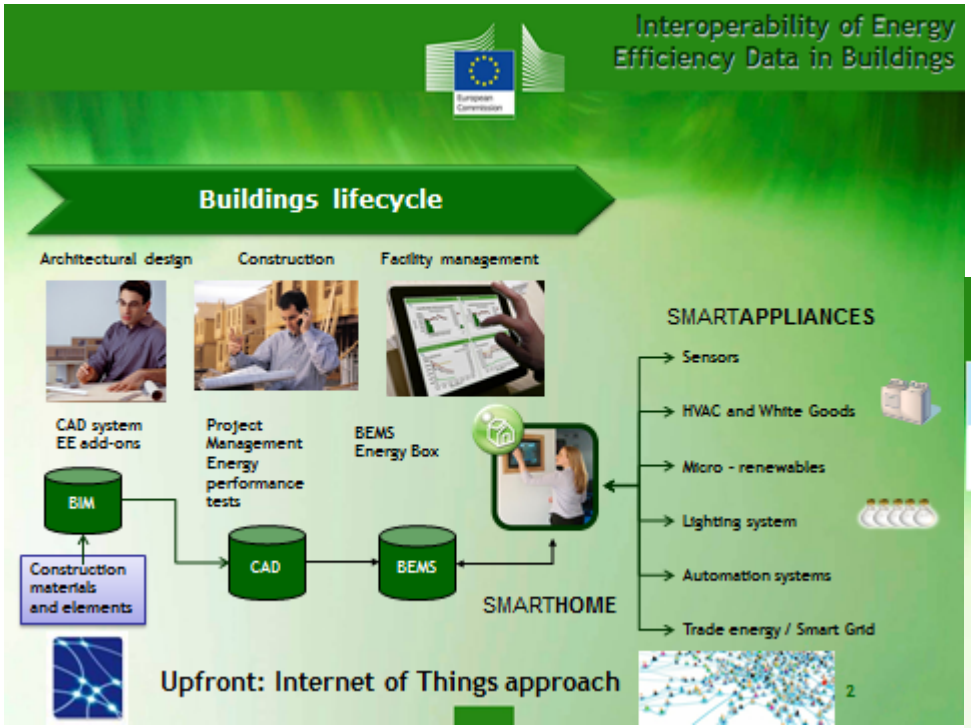
The Opportunity

Towards a European Lighting Strategy:



Initiative from DG ENER and DG CNECT,
Include systems in preparation for revision of EED and EPBD

Thinking Beyond







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