



● THE STATUS OF LED LIGHTING IN THE ECODESIGN LEGISLATION

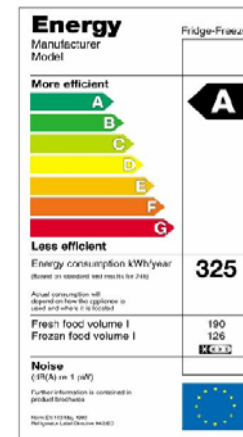
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● Key elements as regards energy efficiency of appliances in the EU

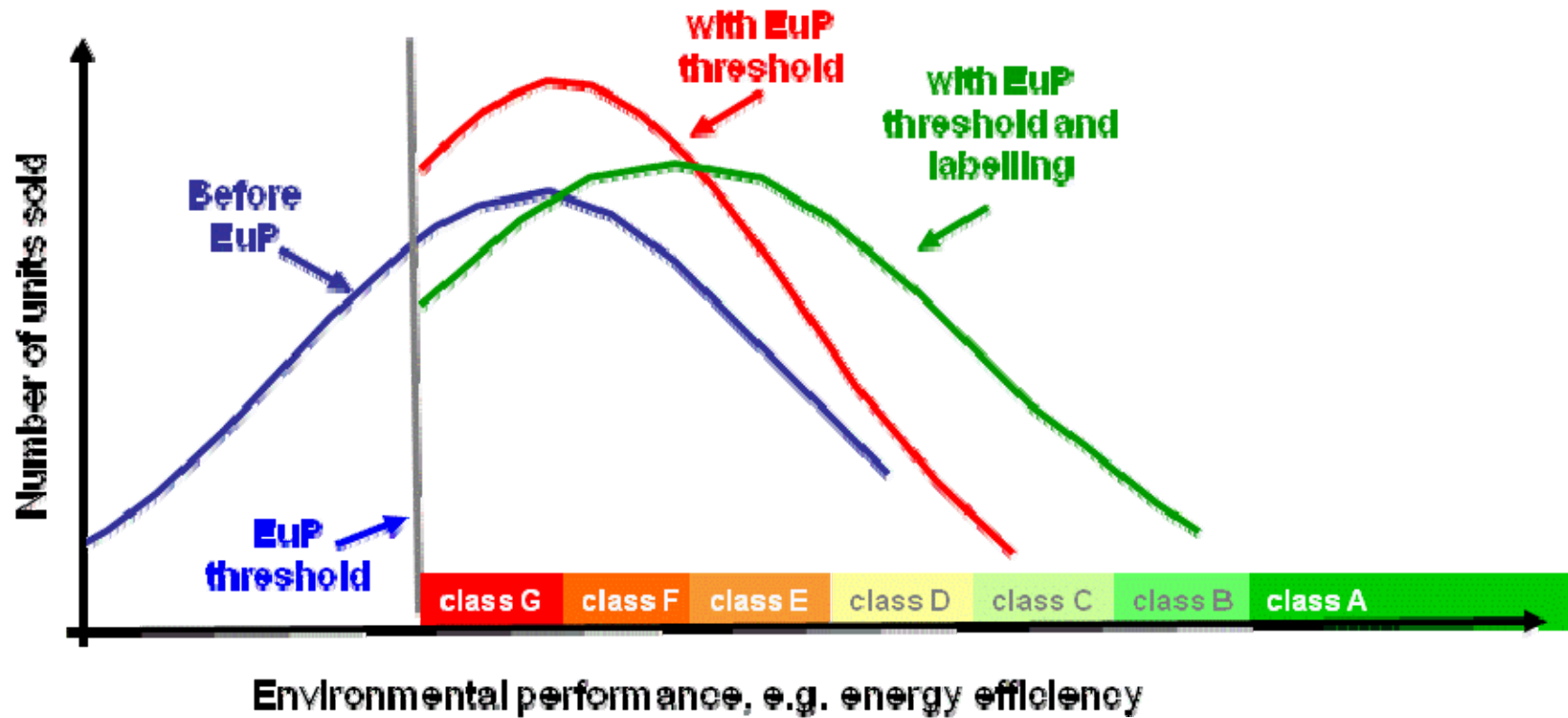
- Ecodesign (EuP) – push the market by taking out the least-performing products

- Energy labelling/Energy Star – pull the market by promoting the best-performing products



- Complemented by public procurement and other incentives (set mainly at the level of Member States)

Market transformation



● Ecodesign of Energy-Related Products (2009/125/EC)

- The EU's main legal instrument to address the environmental performance of energy-related products (except vehicles)
- Aim: free movement of products within the internal market
- all environmental aspects addressed, with a focus on energy
- Formerly known as: Ecodesign of Energy-Using Products (2005/32/EC)
- life-cycle approach: when setting requirements, all phases in a product's life are taken into account, their interrelation examined
- Requirements set at the level corresponding to the least life-cycle cost
- requirements on the product only – influence at the design phase
- Stakeholders participate throughout the whole process (studies, impact assessments, preparatory discussions within the Consultation Forum)

● How is the Commission setting the requirements?

- develop technical basis (usually in a preparatory study) for an implementing measure (Consultant)
- develop suggestion for implementing measure and do Impact Assessment (Commission)
- Consultation Forum (Stakeholders and EU Member States) discusses implementing measure
- WTO notification
- Regulatory Committee (EU Member States) votes on implementing measure
- European Parliament scrutinizes the draft measure
- Directly applicable in MS

● Implementing measures under Directives 2005/32/EC and 92/75/EEC (measures endorsed so far and expected savings)

Product	Estimated savings (annual by 2020 as compared to BAU)
Standby	35 TWh
Simple set-top boxes	6 TWh
Street & Office lighting	38 TWh
External power supplies	9 TWh
Domestic lighting	37 TWh
Electric motors	140 TWh
Circulators	27 TWh
Freezers/refrigerators (adoption of labelling measure pending)	6 TWg
Televisions (adoption of labelling measure pending)	43 TWh
Total	341 TWh (70Mtoe assuming a 2.5 factor electricity-primary)

Expected savings equal to 12,5% of the total annual EU electricity consumption

● Ecodesign measures on lighting products

Commission Regulation 245/2009 on “tertiary sector” lighting products:

- technologies typically used in office and street lighting (linear fluorescent lamps, high-intensity discharge lamps and related ballasts and luminaires)

Commission Regulation 244/2009 on **non-directional household** lamps:

- Phasing out incandescent bulbs + functionality requirements on remaining lamps

Further measures in preparatory study phase (adoption planned 2011):

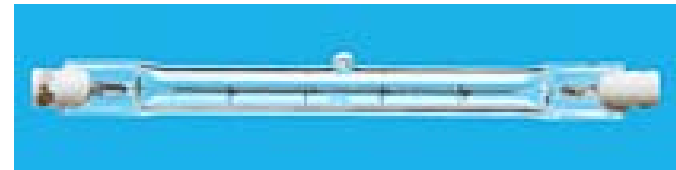
- Regulations on household luminaires and directional (reflector) lamps
- Update of the lamp energy label, possible luminaire energy label

● Alternatives to conventional incandescent bulbs



● Improved incandescent lamps I. (Halogen lamps with xenon gas filling)

- About 20-25 % less energy for the same light output (class C of the label)
- Equivalent light quality
- Lasts twice as long (2 years).
- Fully compatible in size with existing luminaires
- Dimmable on any dimmer.



● Improved incandescent lamps II. (Halogen lamps with infrared coating)

- about 45 % less energy for the same light output (class B of the label)
- equivalent light quality
- lasts three times as long (3 years).
- dimmable on any dimmer.



Note: the versions which are not screw-capped are low voltage and therefore require an external transformer.

● Compact fluorescent lamps

- Fluorescent lamp tubes with an integrated ballast
- Will use between 65% and 80% less energy (class A of the energy label)
- Often comes with an external envelope
- Money-savers
- Environmentally-friendly (climate change)
- Long lifetime (>6 times longer compared to incandescent lamps)



● Light Emitting Diode (LED)

- Fast emerging technology
- Energy-efficient (A-class)
- For retrofit bulbs, light output and other functionalities often relatively weak compared to other technologies
- Soon likely alternatives to the full range of lamps



● Summary of Regulation 244/2009

- Scope: all **non-directional** lamps except those covered by tertiary sector lighting regulation (in practice incandescent lamps, halogens, compact fluorescent lamps with integrated ballast, **LEDs**), with limits on light output (>60 lumen, <12000 lumen)
- Calendar of the phase-out of incandescent bulbs
- Level of ambition for energy efficiency beyond phasing out incandescent bulbs
- Requirements on the functionalities of the lamps:
 - » lifetime, light quality, starting times, UV radiation
- Requirements to display product information on the packaging of the lamps and on free access websites

● Provisions on functionality - overview

Regulation 244/2009 addresses functionality in three ways:

- Lower requirements for clear lamps - **in order to allow bright point sources such as C-class halogens**
- Performance requirements for compact fluorescent lamps (not for LEDs) – **in order to approach incandescent bulb quality**
- Product information requirements (including for LEDs) – **in order to allow informed choices by the user**

● Provisions on functionality in 244/2009— product information requirements

For full user satisfaction, the following parameters must be displayed on the packaging of lamps (including LEDs):

Information for fair comparisons:

- Lumen information more prominent than watts
- Equivalence claims subject to conditions

Features not available on all alternatives:

- Dimmability
- Resistance to frequent switching
- Resistance to extreme temperatures
- High colour temperature
- High colour rendering
- Fast warm-up



● LEDs under Ecodesign (summary)

Commission Regulation 244/2009:

- requirements for non-directional LED lamps (>60 lumen, <12000 lumen):
 - » efficiency (class A for non-clear lamps since 1 September 2009, gradual introduction of class C for clear lamps until 2012)
 - » product information (from 1 September 2010)

Upcoming Ecodesign legislation (first drafts in May, adoption 1st half 2011):

- Efficiency, functionality and product information requirements for directional lamps (including LEDs)
- Functionality requirements for non-directional LED lamps
- Efficiency requirements for LED drivers (alongside halogen converters), as they are currently excluded from the External Power Supplies measure (Commission Regulation 278/2009)
- If necessary, making the scope of Ecodesign legislation more specific about LED retrofit lamps, LED modules (within scope) and LED luminaires (to be discussed)

● LEDs under Energy Labelling

Review of Energy Labelling of Lamps (Commission Directive 98/11/EC):

First drafts in May, adoption by the Commission likely in first half of 2011.

- Include LEDs explicitly in the scope
- Enlarging the scope to directional lamps
- Review label classes

● Provisions on functionality in 244/2009 – performance requirements for CFLs

Approaching the service offered by incandescent bulbs through minimum requirements on:

- Starting times
- Warm-up times
- Switchability
- Colour rendering

+

Lifetime, lumen maintenance and other requirements (UV radiation, early failure, power factor)

Similar requirements are likely to be proposed for LED lamps too.





- Links for more information

Commission website on lighting:

www.e-lumen.eu

(multilingual temporary version operational from 1 September 2009, full-fedged website due in March 2010)

Commission website on ecodesign:

ec.europa.eu/energy/efficiency/ecodesign/eco_design_en.htm

Preparatory study on household lamps:

www.eup4light.net