

# Industry position

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**Secretary General**

**EEB conference**  
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# About the European Lamp Companies Federation (ELC)

- 7 member companies, which are the leading lamp manufacturers in Europe

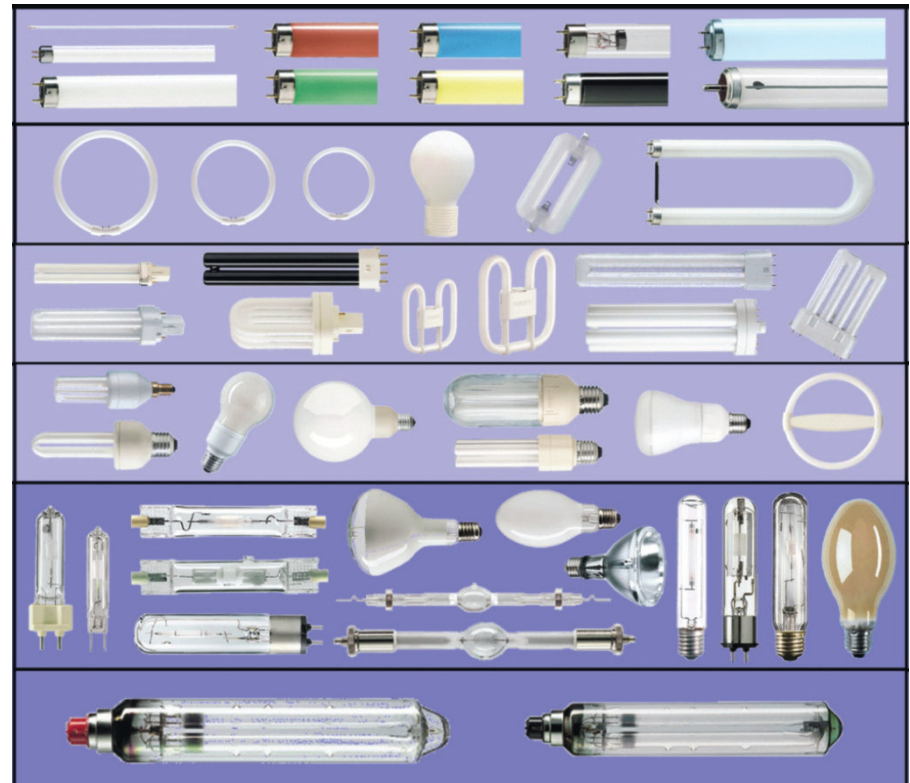


- 95% of total European production
- 50 000 employees in Europe
- 5 billion EURO European turnover
- [www.elcfed.org](http://www.elcfed.org)

# The market requires a huge variety of gas discharge lamps

Lamp types containing mercury:

- Fluorescent Lamps (FL) for general lighting (linear & non-linear) – such as T5, T8, T10, circular or bended
- FL for special purposes - such as sun tanning lamps
- Compact Fluorescent Lamps (CFL ni, CFL i) for general lighting
- CFL for special purposes - such as sun tanning, UV curing lamps
- High Intensity Discharge lamps (HID)



CFLi: with integrated ballast

CFLni: without integrated ballast

# High Intensity Discharge (HID)

Mercury Vapor Lamps

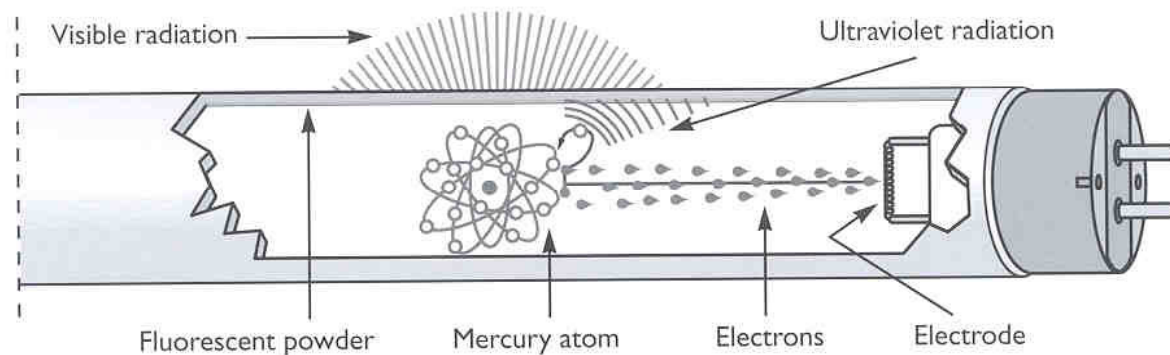
Metal Halide Lamps

High Pressure Sodium Lamps  
Low Pressure Sodium Lamps



# The function of mercury in fluorescent lamps

- Energy saving fluorescent lamps contain very small amounts of mercury to convert electricity into light more efficiently.
- No mercury is emitted from lamps when in use which is why they are safe, both in regard to human health and the environment.
- No other material has been found to replace mercury and reach comparable energy efficiency, lifetime & light quality.
  - This has so far been recognised by those responsible for regulating mercury in the EU.

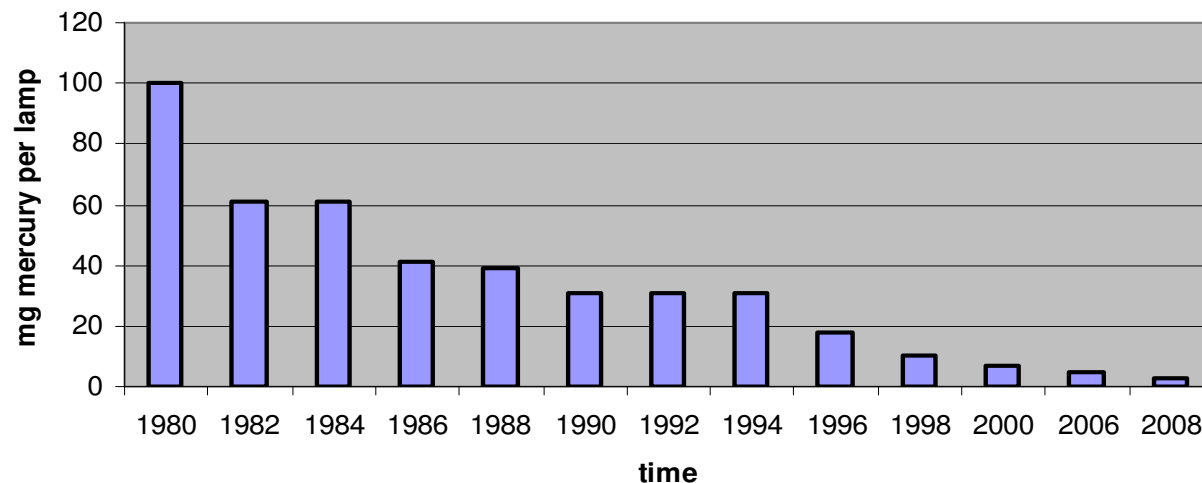


Working principle

# Reduction of mercury amount needed in lamps

- Over the past 25 years, lamp manufacturers have developed innovative ways to increase lamp performance while minimising the use of mercury.
- The mercury content of lamps has therefore been reduced by more than 90% in that time.
- ELC members continuously work towards decreasing mercury in lamps.

**Reduction of the mercury content in fluorescent lamps over the last 28 years (best available technology)**



# RoHS exemptions review

- The RoHS Directive (2002/95/EC) regulates mercury (Hg) and other substances in lamps.
- In this context, the ELC member companies are committed to reducing existing levels of mercury, where (according to Art 5(1)b) this is practicable from a technical, scientific and environmental point of view.
- The ELC has proposed substantial reductions in mercury content as part of this review.



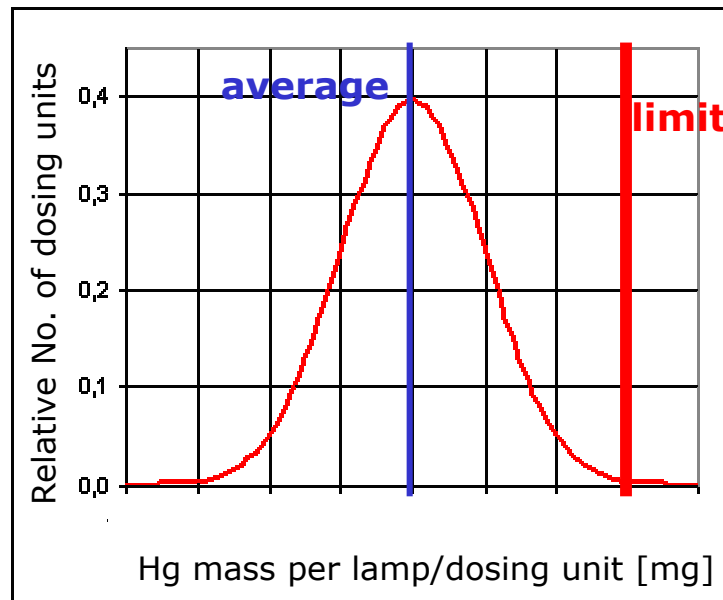
# Why different mercury levels are required?

- Different mercury amounts are needed depending on the technical characteristics of each lamp group concerned such as:
  - lamp technology
  - size
  - length
  - diameter
  - wattage
  - current density
  - lifetime
  - production process
  - phosphor (type, amount)
  - barrier coating
  - glass type
  - purpose

Example: CFL v. Halophosphate lamp (different phosphor type = different mercury amount).

# What is the difference between limit & average?

- There is a difference between an average mercury amount for a certain lamp type and a mercury limit value, that has to cover variances in production processes and also market surveillance requirements (sampling, testing).



Illustrative description of variances in mercury dosing per lamp

# What are the consequences of overly ambitious mercury limits?

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Over ambitious mercury limits could have the following consequences:

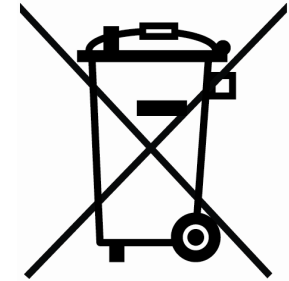
- Reduced lamp lifetime (leading to higher Hg usage overall)
- Reduced innovation potential (caused by e.g. trade-off between energy efficiency and mercury amount)
- Potentially higher product prices (caused by higher R&D and production costs)
- Niche products would probably have to disappear from the market with immediate effect (UV disinfection & healthcare lamps)

# The mercury paradox

- Mercury containing, energy efficient lamps definitely reduce mercury emissions into the environment in comparison to incandescent lamps.
- LCA Data from the “Umberto & Ecoinvent” data-base:
  - 1 kWh of generated power represents an average emission of 0,015 mg Hg. \*
- Calculations based on this data result in the following mercury emissions:

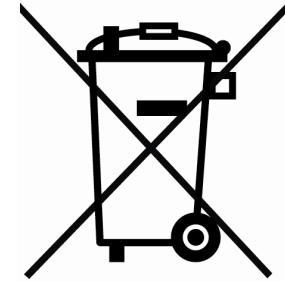
<b>Wattage</b>	<b>Lamp type</b>	<b>Hours of operation</b>	<b>Mercury emission</b>
60 Watt	incandescent	10.000 h	8,8 mg
12 Watt	energy saver	10.000 h	1,76 mg

# Recycling of lamps



- EU's WEEE Directive (2002/96/EC) aims to minimise the impact of electrical and electronic goods on environment.
- The European lamp industry has in response to its obligations established an pan EU take-back infrastructure for mercury containing lamps.
- This allows the various materials they contain – including mercury - to be recovered and recycled or disposed of in an environmentally sound way.
- More than 80% of the material in lamps is recycled, resulting in fewer resources being needed to produce new goods.

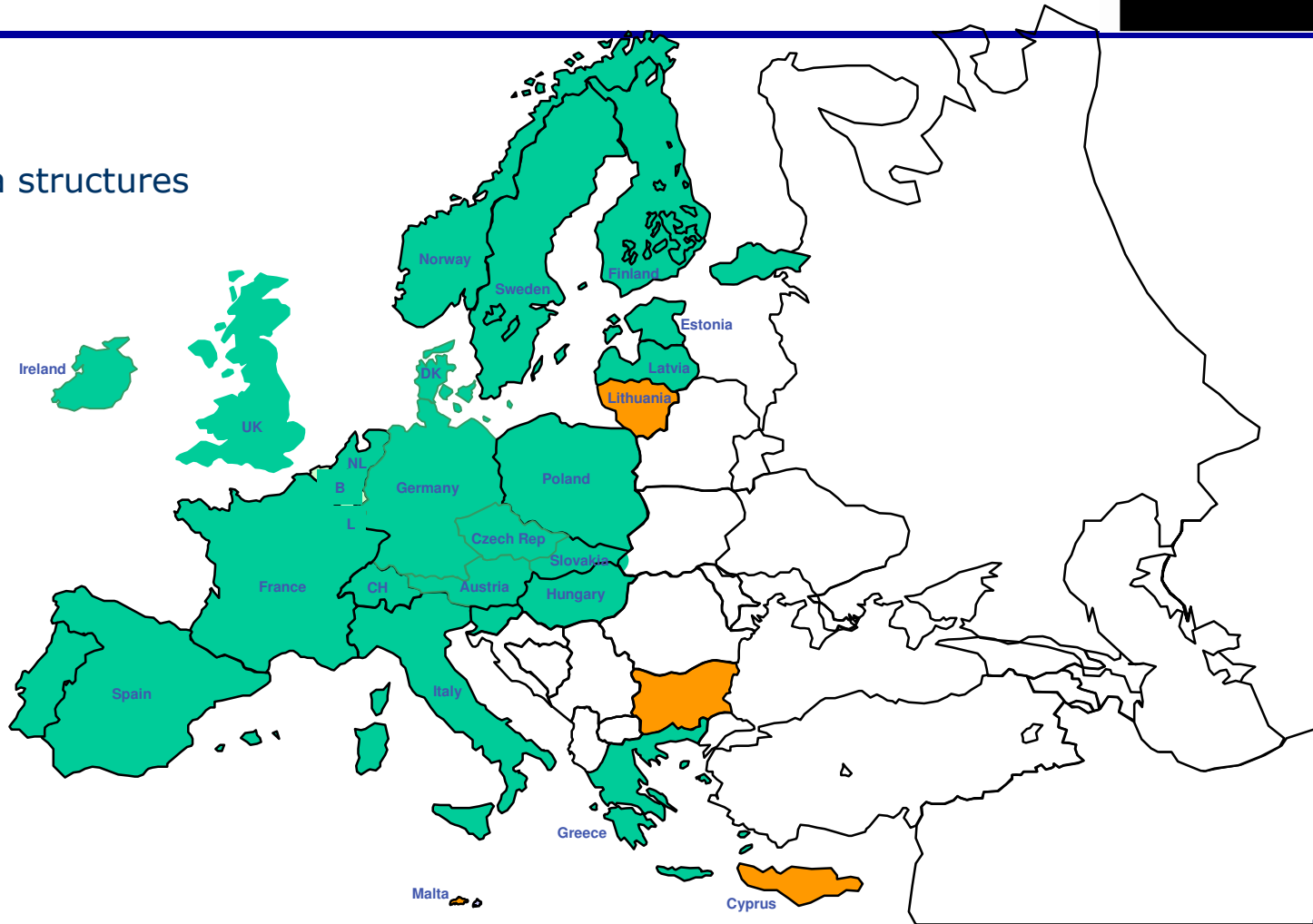
# ELC CRSO's or joint systems in the following countries



12 CRSOs

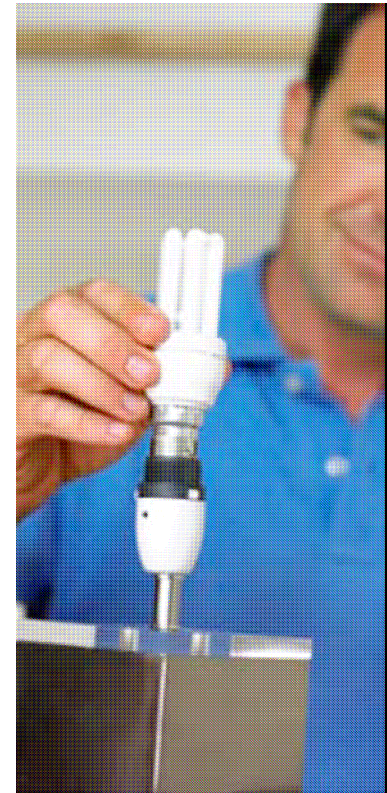
11 umbrella structures

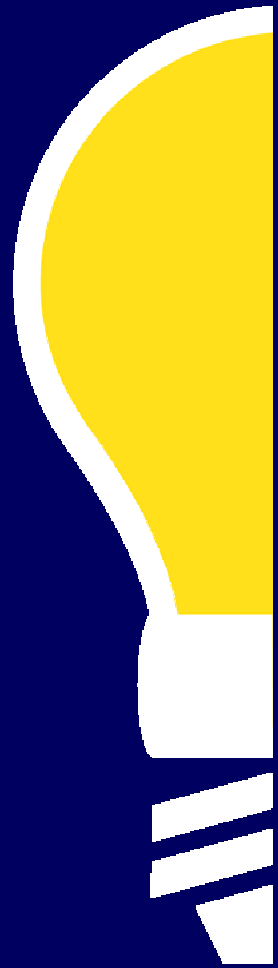
4 pending



# Conclusions

- European lamp industry is working towards reducing the amount of mercury needed.
- Different mercury limits are needed depending on the technical characteristics of each lamp group concerned.
- Mercury should not be regulated in isolation
  - Other affected parameters should be considered when regulating mercury





EUROPEAN



LAMP



COMPANIES



FEDERATION



# The function of mercury in HID lamps

